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VOL. LVI OCTOBER
No. 10 1941

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York
EDGAR J. BUTTENHEIM, President
HAROLD S. BUTTENHEIM, Editor
THEODORE REED KENDALL
Engineering Editor
M. V. FULLER, Associate Editor
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Advertising Mgr. Asst. to President

•

BRANCH OFFICES
Daily News Building, Chicago
GEORGE S. CONOVER, Vice-President
Mills Building, San Francisco
DUNCAN A. SCOTT, Representative

•

Subscription, $2 per annum in
United States and Canada
($3 to foreign countries)
Single copies, 35c
Back numbers, 50c

Entered as second-class matter, July 29, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in U. S. A.

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IN THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

See pp. 17, 18, 20, 111, 113, 115 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 130

PITTSBURGH IMO METERS

Here's What Keeps 'Em Measuring

THE MEASURING CHAMBER

THE ROTORS

THE CIRCULAR STRAINER

YEAR IN . . . YEAR OUT, ACCURATELY, QUIETLY, WITHOUT REPAIRS

THE "heart" of the Pittsburgh IMO Meter is the unique measuring chamber with its precision cut rotors. Here are the component parts spread out before your eyes so that you can see "what makes the wheels go 'round." But what you can't see from this picture is the performance records that are made possible by this design. From all over the country come the reports.

When you invest in water meters, make sure that the operating mechanism will guarantee a long, efficient life. Install Pittsburgh IMO Meters. They cost less because they measure more, last longer and require fewer repairs.

PITTSBURGH EQUITABLE METER COMPANY

NEW YORK · BROOKLYN · DES MOINES · MEMPHIS · DALLAS · TULSA · CHICAGO · BOSTON

MERCO NORDSTROM VALVE COMPANY
Main Offices, Pittsburgh, Pa.

NATIONAL METER DIVISION, Brooklyn, N. Y.

KANSAS CITY · PHILADELPHIA · SAN FRANCISCO · LOS ANGELES · SEATTLE · HOUSTON · COLUMBIA · BUFFALO

From All Over The Country Come The Reports . . .

"We just brought in an IMO that registered 3,152,000 gallons. It tested slightly better on the low flows than when just put into service and accuracy had not changed at rates above 1 g.p.m."

"On our breakdown test the IMO has passed the 3,000,000 gallon mark. Two disc meters on the same line have each been replaced twice."

"After 1,000,000 gallons no sign of wear, and the meter tests even better on low flows than when first installed."

"The IMO has now passed 1,606,528 cubic feet (over 12,000,000 gallons) at operating rates as high as 4959 cubic feet per day. The meter was brought in for test and found to be registering 90% at ½ g.p.m. and 100% on a stream from ½ g.p.m. up."

"We are especially pleased by the way they (IMO Meters) pick up small flows of water such as sprays on fruit in markets, which we have been losing heretofore. A second important factor is that IMO Meters have proven to be quiet even when large volumes are being drawn."

PITTSBURGH IMO METERS WEAR IN WHERE OTHERS WEAR OUT

Pittsburgh Meters

THE MOST COMPLETE LINE OF WATER METERS IN THE WORLD

Calling All Fire Chiefs ···– and Other Municipal Officials!

Why National Defense Is a Municipal Problem

ADDRESSES, demonstrations and exhibits at the Boston Convention of the International Association of Fire Chiefs, August 18-22, all pointed to a confusion of mind. Each talk, each test, each exhibit of equipment, may have been clarity itself; but taken together no clear understanding of the present emergency stands out.

Is an enemy expected to land equipment worthy of the employment of the land battleships which are now being turned out in this country? If not, then what are these United-States-owned tanks for? If they are to be sent to England, then of what does our local defense effort consist? Of what are we afraid?

Many people think that the August cover of THE AMERICAN CITY answers that question. It shows the latest type bombers zooming above glimpses of the best efforts which can now be made by our fire departments. Taken by themselves, these several efforts would be impressive. Considered in the light of the possible menace overhead, they are inadequate.

Mayors, councilmen and city commissioners, fire chiefs and police chiefs cannot escape their present duty of planning ahead for possible eventualities, and of acting on the best advice available as to total local defense.

The facts are that "every city is now a legitimate target of attack. This means that the civilian population is exposed to attack. The entire technique of warfare is changed, for now there is no isolated zone of war. Rights of those not in the uniformed service no longer exist." So spoke the Director of Civilian Defense, Mayor F. H. LaGuardia of New York, at Boston on August 19. How immediate this danger may be for the cities of the United States no one knows; but it is a potential peril which will continue until men of character and worth are again in governmental control of all the great nations of the world.

That is why national defense is a municipal problem. As the last two years have shown, modern war strikes at the great cities and the other cities where there are factories, power plants, railroad junctions, important air fields.

The job of the military forces is to keep the enemy air armadas from reaching our cities. If the war comes to this side of the Atlantic, one hundred per cent success in this effort can hardly be expected. "In the event of any break through of our air or ground defenses," said Mayor LaGuardia," the civilian defense forces go into action."

As any break through will mean bombing, civilian defense must take the form of fire fighting, police protection, life saving, and feeding. Few fire chiefs can even vaguely sense what their job would be like in case of aerial attack. The Director of Civilian Defense pointed out that as many at 530 fires were burning in London at the same moment.

MUNICIPAL PRIORITIES

To handle the whole matter of local government requirements and priorities, a State and Local Government Requirements Branch has been set up through the joint action of Leon Henderson, Administrator of the Office of Price Administration and Civilian Supply, and Donald M. Nelson, Director of Priorities of the Supply Priorities and Allocations Board.

At the request of Mr. Nelson and Mr. Henderson, President F. H. LaGuardia assigned as representative of the U. S. Conference of Mayors, Russell Forbes, Commissioner of Purchase of New York, to serve temporarily as Consultant in setting up the new Branch. Purchasing Agent Harry F. Wagner, of Cincinnati, has also been in Washington, cooperating in this work.

The Branch is now starting to function. Maury Maverick, formerly Mayor of San Antonio, has been appointed Chief of the Branch. Applications for priorities will clear through this office, which at present is located in Temporary Building D, 6th and Independence Ave., S. W., Washington, D. C.

A Plan for Action

RATHER than attempting to develop a uniform program of local defense now, perhaps municipal officials could go faster and farther by pausing long enough to agree among themselves as to what the danger is in their city, and to:

1. Break down this danger into its elements and work out a method of attack and defense against each element.

2. Agree on and assign the proper body to attack or defend in the case of each element.

3. Determine as far as possible the proper equipment to use against each element.

4. Determine the proper and appropriate use of each type of equipment now available.

If eventualities bring aerial attack, then the obvious results will be fires, destruction of physical properties, traffic and transportation tangles and stoppages, commodity shortages of all kinds, the need for demolition of ruins and cleaning up of débris, restoration of public facilities, reconstruction.

Obviously, the foregoing is far beyond the function of the fire chief. His job is to spot and extinguish fires. But to achieve total defense with any degree of success, he must command a much more effective organization than the one with which he is now familiar. Mayor LaGuardia says he must have at least three times his present personnel and three to five times the arsenal of equipment he now uses. He must have a huge auxiliary force, including fire watchers and spot fighters as well as regular auxiliary fire fighters. He should have available trailer and other portable pumps, much more extensive rescue squads, life-saving equipment, in addition to pumping engines and aerials. Is the fire chief or fire department to take on the whole job of mopping up, or will the army organize an auxiliary division of fire fighters to be rushed to a city that is being subjected to aerial bombardment? It is quite possible that in the event of a long war, the army would have to go in for fire fighting. The requirements are as strenuous as for any other fighting. Only the fittest can be successful at it.

(Concluded on page 15)

1941 looks at 1916

THINGS have changed a lot in 25 years and yet there is much that is the same.

In 1916 it was Preparedness; in 1941, National Defense. But now the scale is bigger, the pace faster. There was pressure on the telephone business then. The pressure is infinitely greater now. New training camps; new aviation fields; new munitions plants—all need telephones. Every one is moving faster and when a Nation hurries it does it by telephone. The Bell System spent 94 millions on new construction in 1916. It is spending more than 420 millions in 1941.

The entire Bell System organization is giving "first call" to defense. We believe you would want it that way.

BELL TELEPHONE SYSTEM

"THE TELEPHONE HOUR" IS BROADCAST EVERY MONDAY EVENING OVER THE N.B.C. RED NETWORK.

During October we hope you will remember to mention THE AMERICAN CITY.

Our Municipal Notebook

Substitutes?

REVISE THE OLD QUERY, "What do you use for money?" to read: "What do you use for traffic signals, diesel engines, nickel, steel or aluminum?" and you have a question of universal municipal interest. Speaking of aluminum, the city of New York is now buying plastic drinking cups in place of the aluminum cups formerly purchased for school luncheons furnished by the School Relief Committee, and finds them good. What substitute materials and equipment is your city using in any of its departments? THE AMERICAN CITY will be glad to publish your experiences for the benefit of other municipal officials.

In the Days Before Parking Meters

ROMAN SENATORS rushing to the Forum to hear Caesar give out were never troubled by traffic cops asking where's the fire. Yet Rome had something just as good—a law which prohibited all chariots except those on official business from entering the central area.

During the reign of England's Henry VIII, traffic laws hit their stride. A parking regulation issued by the Court declared: "The King's Highway is not to be used as a stable yard."

All vehicles were required to maintain a "walking pace," in Rhode Island and Massachusetts during Colonial days. In some cases vehicles were "to be preceded by a flagman on foot."

Traffic control as a science dates from the increase in motor vehicles from 4 in 1895 to more than 30,000,000 in the United States today.

—American Petroleum Institute.

PAID FOR HIS NAP

Drunk's Deposit in Parking Meter Is Ignored.

Portland, Ore., July 3 (A. P.).—Patrolman T. C. Freiberg said the drunk he found sleeping against a parking meter was willing to go to jail but he objected to the policeman's haste.

"He said he'd dropped a nickel in the meter and still had thirty minutes' parking time to go," Freiberg reported.

Photographic Assessment Records?

DO YOU PLACE A PHOTOGRAPH OF THE BUILDING on your assessors' appraisal form or on the taxpayer's assessment card? If you do, will you please send us a specimen card, explaining how the photograph is made and used. In appreciation, we will send you a free copy of our new booklet on modern municipal tax and utility accounting and billing, including descriptions of numerous business machines and systems now being used by city governments. Please send the assessment card to THE AMERICAN CITY, 470 Fourth Avenue, New York.

Speed Spotter

ONE POLICE OFFICER with a Welsbach Speed Analyst can not only count the number of cars passing a given location in one direction, but also spot every car exceeding the speed limit. Both these counts are automatic, and dividing the smaller figure by the larger will give the percentage of speeders at any location. Moreover, a portable lamp inconspicuously placed will signal the officer when a speeding car is approaching. The Traffic Analyst should be indispensable in sifting out the danger factors in any traffic system.

Park Fences Scrapped for British Defense

The Journal of the Commons, Open Spaces and Footpaths Preservation Society, which is still being published in London despite the war, has this paragraph in its issue of July, 1941:

"In connection with the national campaign for securing scrap iron to be re-smelted for use for war purposes, many of the lesser open spaces under the control of the London County Council and other local authorities are gradually losing their formidable barriers of iron railings to which, on the grounds of amenity, much exception has been taken in the past. It must be admitted that the removal of their forbidding railings from such areas as Lincoln's Inn Fields and the Embankment Gardens has greatly enhanced the charm of those open spaces. The substantial fencing has provided much scrap iron, so that a double gain has resulted from the action of the Council. No doubt discrimination will be shown not only in London but elsewhere in selecting the railings to be removed. Some wrought iron gates and fences are worthy of preservation as fine examples of the craftsman's art and should be spared. But many have no intrinsic beauty or esthetic value and their relegation to the scrapheap could be accepted without regret."

Fire Radio

THE ECONOMIC as well as fire-fighting value of modern police radio as efficiently used by progressive fire departments will soon be described in this magazine by Chief H. R. Chase of Miami, Fla.

From the Dallas Morning News August 28, 1941

Gain in Trolley Coaches

Increasingly popular for local transportation, the trolley coach is being adopted by more cities every year. Nearly four times as many trolley coaches are now in operation as at the beginning of 1937. Transit officials like the trolley coach because it is cheap in operation and attracts new patrons. Riders like it because it is quiet, has no gasoline fumes, has wide aisles, runs smoothly and has good lighting and ventilation.

Figures cited in the August issue of the American City show that the trolley coach has been the popular choice, by a wide margin, in practically every instance in which the public has been given an opportunity to express its preference. In a newspaper poll in Portland Oregon, 80 per cent voted for trolley coaches, 9 per cent for streetcars and 2 per cent for motor coaches. By use of trolley coaches, Shreveport increased its local transit patronage from 9,500,000 passengers in 1929 to 14,500,000 in 1940.

The trolley coach's lack of noise and fumes and its ability to weave through traffic are assets that benefit not only its own passengers but everyone who uses the streets. Adoption of trolley coaches in Dallas, proposed some time ago, but apparently dropped later, might bring much relief from this city's street noises and traffic congestion.

Quiet Pleases

NOISE ABATEMENT, always a popular municipal effort, used to mean silencing automobile horns and loudspeakers. The movement has now extended to include the subtle inside office and home noises as well as the unnecessary raucous sounds of the streets. The war is on against clacking typewriters, footsteps resounding on wooden floors, partitions that let the drones and barks of conferences filter through. Materials and devices are available to dampen all these and many other nerve-wrackers. Though the world is far from civilized, it fortunately contains civilized men who go about the business of making a more agreeable prosaic existence at least available. If you don't believe it, find out about the National Noise Abatement Council which meets in New York City on October 23.

1,000,000 Gallon ELEVATED STORAGE TANK

Selected for Service at

FORT SAM HOUSTON

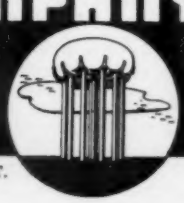
San Antonio
Texas

BASICALLY, the problems of water supply and service at an Army post are quite similar to those of an average municipality. Uniform distribution pressures, provision for pumping during off-peak periods, together with an adequate reserve immediately available for fire protection—these are advantages that are mutually beneficial to both cities and training camps. The benefits available with elevated storage are, of course, not new to municipalities, for they have been utilizing this method of improving water service for many years. Now, with the enlarging of our armed forces, the use of elevated storage tanks at Army, Navy and Marine Corps training centers in many localities is becoming more and more desirable to provide dependable, efficient water supply facilities.

The million-gallon elevated tank illustrated above is a Horton radial-cone bottom unit installed at Fort Sam Houston, near San Antonio, Texas, and provides gravity pressure to meet all general water requirements at this well-known Second Division post.

CHICAGO BRIDGE & IRON COMPANY

Chicago.....2127 McCormick Bldg.	Philadelphia....1616-1700 Walnut St.	San Francisco.....1033 Rialto Bldg.
New York...3308-165 Broadway Bldg.	Boston...1501 Consolidated Gas Bldg.	Houston.....5601 Clinton Drive
Cleveland...2236 Builder's Exchange	Birmingham....1502 N. Fiftieth Street	Tulsa.....1625 Hunt Bldg.
Detroit.....1501 Lafayette Bldg.	Havana.....402 Edificio Abreu	Los Angeles.....1403 Wm. Fox Bldg.



Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PA. *In Canada:* HORTON STEEL WORKS, LIMITED, FORT ERIE, ONT.

Do you mention THE AMERICAN CITY? Please do.

Water-Works Progress

Methods of Sterilizing New Canal Zone Tanks

THE Municipal Engineering Division of the Panama Canal Zone, in charge of water supply for both civilian and military personnel, recently completed the sterilization of the new Cocoli and Chorrillo Hill reservoirs before putting these new tanks into service.

The Cocoli reservoir, which has a capacity of 750,000 gallons, was half filled with water, after which chlorine gas was released inside the tank to make a strong chlorine solution. After allowing this to stand for several hours, the tank was drained and then refilled ready for service.

The 2.5-mg Chorrillo Hill tank was sterilized in an entirely different manner. Fog nozzles in a ring inside the covered reservoir were used to create a fine spray of water around the bottom. Then double cylinders of chlorine were opened inside the tank, and the rising gas was picked up by the fine spray and thoroughly sterilized the entire inside surface. Both of these tanks serve the Pacific Coast area of the Canal Zone and both are covered to prevent the growth of algae under the brilliant tropical sun.

Meter Maintenance in Reading, Mass.

DURING 1940, a total of 415 water meters were tested in the meter department of the Water Department of Reading, Mass. Of these 415 meters, 216 were cleaned and repaired. Thirteen old meters were replaced with new ones, and 7 were junked. New meters were set on 69 new services. At the close of the year there were 101 meters in the meter room from services temporarily shut off from unoccupied houses. During the cold seasons of the year, several meters were damaged by freezing. As of January 1, 1941, there were in use a total of 3,077 water meters in the Reading water system, in sizes from ⅝- to 8-inch.

The annual inspection of meter boxes was made in 1940, and meters were protected from freezing by insulation with felt sheathing. One meter box was discontinued and the meter set in the house cellar; and one meter in a meter box was raised to a higher level.

PHILIP WELCH,
Superintendent, Water Department.

A 1,000,000-Gallon Radial-Cone Bottom Elevated Water Storage Tank Recently Completed at Fort Sam Houston, Near San Antonio, Texas

Bureau of Water Report from West Reading, Pa.

THE AFFAIRS of the Bureau of Water of the borough of West Reading, Pa., are separated entirely from the affairs of the General Fund of the borough. The borough owns and maintains its own distribution system, including storage standpipes having a capacity of 330,000 gallons and also including 46 fire hydrants. There are 8.4 miles of main, ranging in size from 2 to 12 inches and having pressures ranging from 65 to 110 pounds per square inch.

The borough purchases water from the city of Reading and resells it to the consumers at no profit after adding a differential to cover the cost of maintenance and construction of the distribution system, water debt service, and operating costs such as meter reading, billing, supplies, insurance, and legal expenses.

The receipts from water sales in 1940 totaled $33,261.26, as compared with $32,339.22 in 1939 and $31,177.28 in 1938. Bills to the number of 1,202 are rendered every January 1, April 1, July 1, and October 1 to consumers having ⅝- and ¾-inch meters. Thirty-six consumers having 1-inch and larger meters are billed monthly. A 5 per cent penalty is added after the last day of the month billed.

All consumers are supplied with meters to register actual consumption; and every three months the total registered consumption is compared with the total amount of water purchased, in order to determine the loss and waste. This percentage for 1940 was 14.3, as compared with 15.8 for 1939. After taking into consideration the free water supplied to the Garden Association and the fire hall, and water consumed for fire and test purposes, it is believed that leakage throughout the borough is not large.

The amount of delinquent water bills has decreased considerably since a campaign was started for the collection of outstanding bills. Threatened discontinuance of water service has proved effective.

—From the Annual Report of H. F. RICKENBACH, Borough Manager, Borough of West Reading, Pa.

New Drilled Well for Pontiac Supply

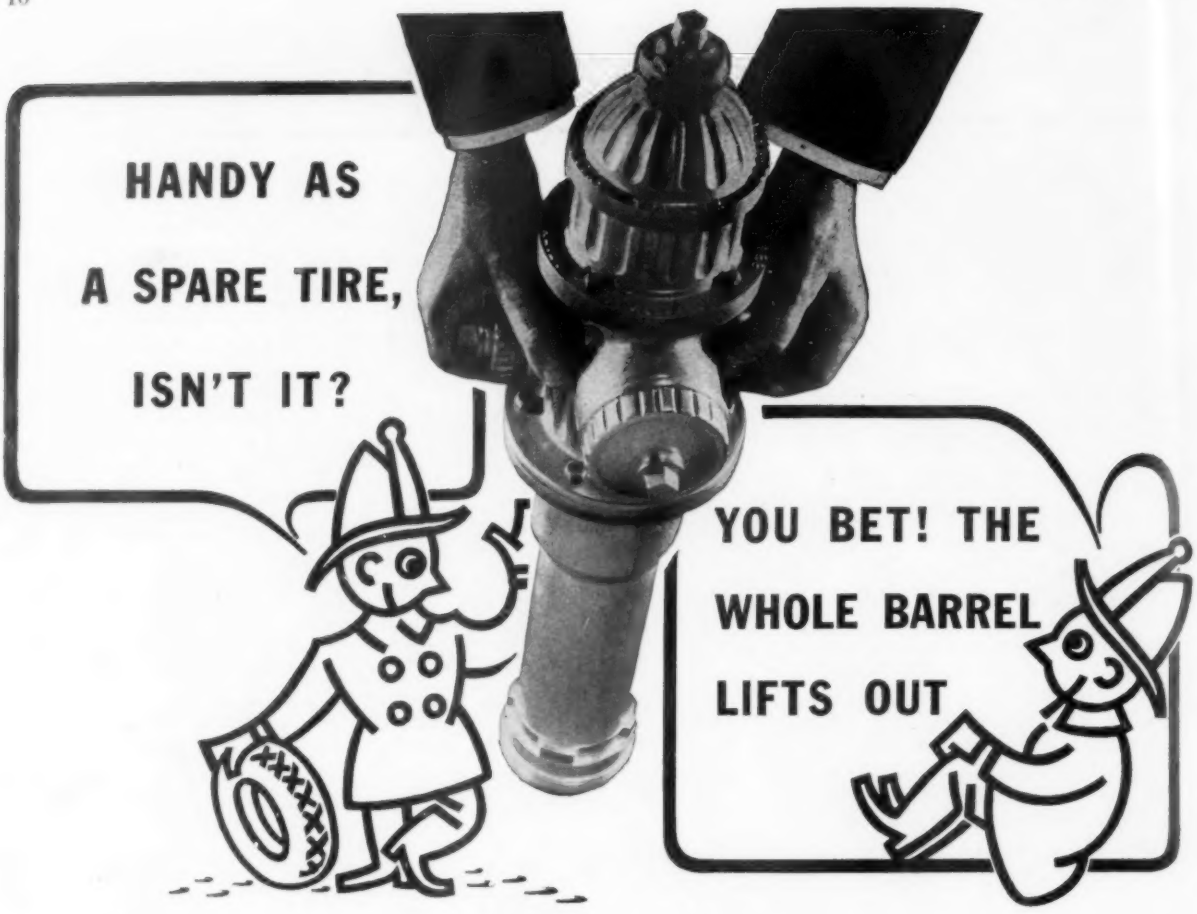
THE DRY SPRING OF 1941 and the heavy water demands of local defense industries created a water-supply problem in Pontiac, Mich., which has fortunately been overcome by the drilling and bringing-in of a 12-inch well, which was started March 29 and completed April 26, 1941. The water is secured from a gravel bed 232 feet below the surface and adds 1.5 mgd to the supply secured from the existing nine high-service wells and three low-service wells. The average depth of the city wells has been approximately 190 feet, and the temperature of the city water is 52 degrees at all times, with a maximum variation of 3 to 4 degrees.

The new well was drilled by the Poe Drilling Co., of Massillon, Ohio, using 12-inch Byers wrought iron pipe for casing. The well and equipment have been thoroughly tested, the supply approved by the Pontiac Department of Public Health, and the well connected to the water supply. The well is now housed in a brick structure with steel sash and doors.

W. P. Edmonson is City Manager, and H. L. Monroe, Superintendent of the Pontiac Water Department.

AWWA Late October Meetings

New Jersey Section
Atlantic City, N. J., Oct. 16-18
Missouri Valley Section
Cedar Rapids, Iowa, Oct. 20-22
California Section
Fresno, Calif., Oct. 22-25
Kentucky-Tennessee Section
Nashville, Tenn., Oct. 27-29
West Virginia Section
Morgantown, W. Va., Oct. 30-Nov. 1



THE Mathews construction is unique. It's the only hydrant in which head, main valve, drain valve, seats, and all working parts can be unscrewed, lifted out, and replaced like a spare tire. The secret is the protection case which rests loose in the elbow and through which the barrel slides. Repair, inspection, or modernizing is done above ground with no digging. No wonder Mathews is standard in so many cities. 75 years of success back its performance. Write for prices, complete description, or demonstration.

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

Manufacturers of Sand Spun Pipe (centrifugally cast in sand molds) and R. D. Wood heavy-duty gate valves for water works

400 CHESTNUT STREET, PHILADELPHIA, PA.

Street Paving and Bicycle Paths

The city of Corpus Christi, Texas, reports that it does "all kinds" of work with this Adams No. 311, 50-hp diesel motor grader. The machine is here shown ditching a street intersection before laying the drain tile

New Bicycle Paths to Be Life-Savers

THE INCREASING NUMBER OF BICYCLES in recent years has led some cities to the construction of bicycle paths. Twelve new miles of bicycle path, the longest single stretch in New York City's future 58-mile network, has been completed along the Brooklyn Belt Parkway. The new cycling by-way with two lanes in each direction, which gives Brooklyn a third link for its 31 miles of cycle system, was developed at a cost of $586,668. Ground was broken for the improvement eight months ago.

The path offers a flat, even drive for the most part, changing only at bridge approaches for slight inclines where it also narrows to 4 or 8 feet. In the section from Owl's Head Park to the Queens County line, the path crosses five bridges and runs through three pedestrian overpasses. Grade crossings at park drives are protected with traffic lights, and on bridges the bicycle paths are completely separated from other traffic by heavy wood guard railing.

The entire path is pitched to the ocean side to take care of the drainage problem. Foot trails, varying from 8 to 12 feet in width, are adjacent to the track, with a concrete panel 2 feet in width separating the bicycle paths from the pedestrian walks. A total of 725 park benches, enough to seat 10,000 people, have been installed along the pedestrian trails which face the ocean. Bench units are located every 500 feet.

Vitrified Paving Brick Sizes Reaffirmed

THE PERMANENT COMMITTEE OF SIMPLIFICATION ON VARIETIES AND SIZES OF VITRIFIED PAVING BRICK has reaffirmed, without change, the recommendations approved by the Committee at its last meeting in April, 1940.

In its recent survey, the Committee found that 85.9 per cent of the total shipments during the calendar year were in accordance with the five sizes shown in the Simplified Practice Recommendation R1-40.

In 1921, when these surveys were first proposed, it developed that vitrified paving brick was available in 66 different stock sizes. The original recommendation reduced this number to 11, and the first conference further reduced the number to 7 sizes. Subsequent conferences and surveys have resulted in the five varieties reported in 1941.

Asphalt Paving Predominates in Leading Cities

ACCORDING TO A RECENT CENSUS OF PAVING in the 93 cities of over 100,000 population, made by The Asphalt Institute, the following types of paving, higher than waterbound macadam, are in use. The table below is based on reports received from officials in 71 of the cities.

Type	Square Yards	Per Cent
Asphaltic	465,081,087	71.3
Portland cement concrete	86,534,311	13.2
Brick	56,072,849	8.6
Block (stone and wood)	42,235,836	6.5
Unclassified types	2,692,337	0.4

Street Maintenance in the Suburbs of Sioux City, Iowa, with a Caterpillar No. 212 Motor Grader Owned by the City

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NUMEROUS are the cities and towns where municipal and industrial water wells and pumps are 100% Layne. The progressive and thriving city of Tyler, Texas is an example. The first ground water development in that area was installed by Layne in 1934. Since then all municipal and industrial well water supply and turbine pump systems have been Layne.

In meeting defense and armament project emergencies, Layne Companies have broken all records, both in the number of wells and pumps installed and in the quantity of water produced, in any like period of time. In addition to such added activity, Layne Companies have continued their service to municipal and industrial non-defense projects without appreciable delay.

Layne is unquestionably the largest and most widely experienced ground water developing organization in the Nation. Their methods have proven most successful and the number of their completed projects exceeds that of any other water developing organization ten times and more.

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Health Studies - Typhoid Carriers

Another Typhoid Carrier Prepares Banquet Foods

On April 3, 1940, a Banquet was held in a lodge hall in Dayton, Ohio, by a group of railroad employees with about 150 people in attendance. Three weeks later a physician reported that he had been called to treat several of these persons and that he suspected typhoid fever. Laboratory tests made by the Division of Health of Dayton confirmed the physician's diagnosis, and further investigations revealed seventeen cases of typhoid in all. Some half-dozen other persons who had been at the banquet were mildly ill, but the laboratory confirmation was lacking and most of them have recovered.

Examination of the water and milk supplies at the lodge hall, as well as at the homes where the food was prepared, failed to show contamination. All the food served at the banquet was purchased at one grocery. The clerks at this store all gave negative histories of typhoid and there were no other cases among those who patronize the store. The dairy products were all from the same plant and were in constant use by many persons without difficulty. It was felt by the Division of Health that, since all cases had attended the banquet, and since the foods in the raw state were apparently innocent, there must be a typhoid carrier among those engaged in either the cooking or the serving of the meal.

The foods for the banquet were prepared in the homes by the wives of several of the members. In all, nine persons had more or less to do with the cooking and serving of the food. Some of these were professional food handlers. Three gave histories of having had typhoid previously. Two tables were served at the banquet; at the first were the speakers and out-of-town guests, and those who ate at the second table were all Dayton people. A check of the out-of-town guests revealed no illness, and all the cases of typhoid were among those who ate at the second table. This food was prepared in the home of one of the women who had given a history of typhoid a number of years before.

Bacteriological examinations have established the fact that this woman is definitely a carrier of the disease. Her history is as follows: Twenty-five years ago she suffered an attack of typhoid fever and since that time her son and two daughters-in-law have had the disease at various times. The last case was early this year. Finding this carrier also explains two cases of typhoid during the month of March in two men who worked in the same place of business. It was found that the son of this lady also worked there and that he carried his lunch, which was cooked by his mother, and that on occasions these two patients had eaten from his lunch-box.

Examination of all other food handlers at the banquet was negative. All cases of typhoid can be directly traced to this carrier at the banquet on April 3. There have been no more cases and there is no reason to fear further outbreaks as the woman who is the innocent purveyor of this disease now knows her condition and under the supervision of one of the sanitary officers of the Division of Health of Dayton is taking all precautions against contaminating others.

New Haven Now Studies Its Health Department

For Good Business Administration it is necessary to take stock periodically of an organization and its assets, so that future plans may be soundly conceived. Timely appraisals are likewise fundamental for efficiency in public health administration. The primary purpose of a health survey is to determine existing or potential problems, study local procedures, and, ultimately, suggest measures to improve service.

A survey of the sanitation service offered by the Health Department of New Haven, Conn., was begun on October 1, 1940. The organization of the study in this city of about 160,000 population, and its objectives, are summarized as follows:

1. A survey of the community's needs in so far as environmental sanitation is concerned, and an appraisal of the extent to which these needs are met.

2. A survey of the Health Department's Bureau of Inspection to determine (a) the services offered, (b) the scope of these services, (c) how sanitarians spend their time, and (d) how well qualified they are to handle the job.

3. A study of the public health laws and regulations under which the Bureau operates with particular reference to interpretation of the existing body of laws and the need for additional legislation.

4. An evaluation of the record system, particularly to determine its usefulness in administering the sanitation program.

5. A study of the possibilities of using sanitary officers for health instruction in a typical city health department.

In the five methods of approach there is considerable overlapping of procedures. This should, however, be an advantage since there is no other simple way in which this study may be controlled.

—From *Health* published by the New Haven Department of Health, November, 1940.

The Typhoid Carrier a Threat to Health

The 1939 Annual Report of the Department of Health of Newark, N. J., is bound in a silver cover in honor of the silver anniversary of Dr. Charles V. Craster, who has served the city for 25 years as Health Officer. The report is notable for its 25-year review of health activities in Newark, but this item is devoted particularly to the lines which report an unusual increase in typhoid fever cases in 1939, in Newark.

There were four typhoid fever deaths during 1939 in Newark—the highest number in seven years, which shows the remarkable freedom which this city has had, due to its pure water supply, its proper sewage system, and a clean and pasteurized milk supply. A total of 25 cases of typhoid fever was reported for 1939, the highest in 12 years, and this indicates the need for constant vigilance. Thirteen of these cases were in September, and an investigation by the Health Department left little doubt that a mild but infectious case had conveyed the disease to a number of friends in the same neighborhood, several of whom had attended a luncheon with the individual, the others having had recent contact with her. Thus, the typhoid carrier again is shown to be the modern sore spot in the fight against this insidious disease.

The remarkable record of Newark in combating typhoid fever is shown in the five-year averages of typhoid fever mortality beginning in 1898:

1898-1902	21.1	1918-1922	2.6
1903-1907	18.5	1923-1927	1.9
1908-1912	10.8	1928-1932	1.6
1913-1917	5.5	1933-1937	0.2

The typhoid fever mortality rate for 1938 was 0.4, and for 1939 was 0.9.

American Public Health Association Convention
Atlantic City—Oct. 14-17, 1941

THE GAMEWELL POLICE SIGNALING SYSTEM

A Major Defense Against Crime and Fire

The system includes the telegraphic code signaling, telephone, and recall features, all basic elements in police communications and contributes to public safety by ensuring an adequate patrol of the policed area and fire district. And, by providing for the swift and convenient transmission of emergency signals in cases of accident, riot, or serious crime, protects both the citizens and the police. Traffic police and other officers on fixed posts are enabled to promptly report accidents and other emergencies without leaving their posts. The recall feature enables the central station to call the patrolmen individually or collectively or to transmit to them instructions in secret police code.

A recognized factor in fire protection, the system also lends itself readily to the extension of police protection and supervision to industrial establishments, banks, hotels, and other special hazards. Citizens are also enabled to quickly secure police assistance.

A MUNICIPAL UTILITY

Invaluable as a defense against fire and crime the system is a municipal utility of exceptional merit, providing a readily accessible telephone service for all municipal employees such as maintenance men of the various departments as well as for private watchmen, mercantile police, and special officers outside of the police department.

•

Type CX Police Operating Desk. The automatic recording outfit with time and date stamp is mounted on top of the cabinet and displays the recorded signals in full view of the operator. The desk and cabinet are of art metal. The manual transmitter at the right of the operating panel provides for a multiplicity of recall signals in code to the patrol force and for the transmission of emergency signals to the garage, hospital, and fire department. Simplicity and efficiency of operation characterize this type of desk.

Police Patrol Box—Exemplar Type

Equipped with three calls — Report, Emergency, and Telephone. The telephone service may be made to connect through the police central station with all police bureaus, officials, and other municipal departments. Multi-call boxes capable of transmitting from four to seven code signals are also available.

Police Recall Signal

The signal light is contained within a red Fresnel lens supported by a cast aluminum body. The dark shade contributes to effective signaling both by night and by day.

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THE GAMEWELL COMPANY

NEWTON UPPER FALLS, MASS.

When you write for that catalog, kindly mention THE AMERICAN CITY.

Public Safety

Calling All Fire Chiefs and Other Officials

(*Continued from page 5*)

A nation-wide master plan for civilian defense would define the work of the local fire departments of cities such as New York, Chicago, Philadelphia, Boston, Detroit, San Francisco, Wilmington, Bridgeport, and other military objectives or targets. It would tell what to do. That is what the fire chief wants to know. "Tell us what to do and we are ready to go," say the fire chiefs to the Director of Civilian Defense. If they are not told, many of them won't go. They should be told only after someone finds out what they really must do.

With regard to equipment, there are many opinions. In the mere matter of trailer pumps, there are chiefs who are for 'em and chiefs who are ag'in' 'em. Obviously, the trailer pump has a function. What this function is should be determined and set forth. Perhaps industrial plants should buy them and have them available for the local fire department. What kind of fire fighting can best be performed by portable pumps? Are you likely to have to do this kind of fighting? What kind of equipment is needed in case several blocks in the business district are tumbling or blazing? Could that happen in your city?

In addition to deciding the place of the trailer, the 125-foot aerial and 2,000-gallon pumping engine, the proper types of rescue truck for various demands should be worked out. More than this, the best types of life-nets and breathing equipment should be determined. Too little is now known of the many kinds of equipment available and of the numerous annual improvements being made.

Mayor LaGuardia plans to go before Congress, to request an appropriation to aid in the provision of all the fire-fighting equipment needed. He rightly asserts that now is the time to decide of what the equipment shall consist. To the extent that local funds are to be spent, wise municipal officials will purchase, wherever feasible, equipment that will be serviceable in times of peace as well as in emergencies of war.

Don't Forget the Red Cross

The importance of cilivian defense is indicated by Quentin Reynolds in *Colliers* for August 23, 1941:

"The battle of Britain was won by 250,000 civilian fire fighters, the thousands of civilian air wardens, ambulance drivers and canteen workers, and when invasion comes the home guard of nearly 2,000,000 is expected to play a big part in what we in London confidently expect to be a success defense. London has twice been saved from complete destruction by the civilians—by the people's army.

Let us remember, in this connection, that vital elements in civilian defense are first aid and disaster relief; and in our zeal for setting up new agencies for patriotic effort, let us not forget that we have in every American city an organization exceptionally equipped with man-power and woman-power and with funds for important service in the impending emergency—the American Red Cross. Its local groups should be brought into the picture now, in every city—before disaster strikes.

• • • —

Contest in Driving Fire Autos

The Boston Fire Department recently conducted a safe-driving contest among its chauffeurs. Each driver was rated in accordance with the test supervised by the Ford Motor Co. Judges were P. J. Karch of the Registry of Motor Vehicles, Melvin B. Clifford, A. A. A. Contest Board, Brockton, Mass., and J. C. Ankeny of the Ford Motor Co.

Owen J. Coyne was given the highest rating, with Francis J. Scott and Thomas F. Kilduff, Aides to the Chief of Department, placed second and third respectively.

This contest was designed to give the public information that the Boston Fire Department exercises extreme care and caution in handling its motor vehicles, and evidence that in the event of accident the Fire Department drivers are qualified even beyond the ordinary demands of the Registry of Motor Vehicles for the handling of emergency cars.

An additional value to this contest is in the psychological effect it has on the chauffeurs themselves. Chauffeurs whose cars are in frequent accidents and who were at the bottom of the list in the driving contest can be relieved from chauffeur duties with justification.

William Arthur Reilly,
Fire Commissioner, Boston, Mass.

Why Are Fire Trucks Red?

Fire trucks are red;
Newspapers are read 2;
2 times 2 are 4;
4 times 3 are 12;
12 inches is a ruler;
King George was a ruler;
Queen Mary was also a ruler;
There is a ship named Queen Mary;
That sails the 7 seas;
The 7 seas have little fishes;
The fishes have fins;
The fins fought the Russians;
The Russians are red;
Fire trucks are always rushing;
That's why fire trucks are red.

—In the *Oklahoma Teacher*, September, 1941.

Terrain of the Safe Driving Contest of Boston's Fire Chauffeurs

WAKE UP!

Snow labor is going to be scarce!

BUT we'll have snow just the same. Old Man Winter is going to come down and block your fire department, your doctors, your milk deliveries and cause the loss of thousands of dollars worth of business because of crippled transportation.

You can try to do it the old expensive way and take weeks to get the snow off your streets or you can save money and use Snogo.

Snogo loads a truck — packed full every 10 to 20 seconds or better. It leaves clean streets right to the curb and when Snogo is done, the job is done. It does not push big drifts in to block driveways. No banks are left on the streets to clutter up parking or block vision. No heavy blanket of snow remains to thaw and freeze into dangerous ruts.

Snogos are available over a wide range of prices and sizes. The smallest city today can have Snogo protection.

KLAUER MANUFACTURING CO.
Dubuque, Iowa

AND REMEMBER
Snogo is absolutely guaranteed to handle any snow condition that will ever develop on any airport!

SNOGO

For Complete Snow Removal

Defense Depends on Open Roads

Vol. LVI, No. 10 The American City October, 1941

Site Planning for Livability

Housing Authorities Need Counsel and Tolerant Understanding from City Officials

By Elbert Peets
Chief, Site Planning Section,
United States Housing Authority

HOUSING projects of all kinds are being built in big and little cities throughout the country. Site plans are coming to city officials for approval and for help in fitting the housing project into the street and zoning plans of the city. Very often the site planners are asking officials to approve plans that vary from established codes and practices. I know from experience how often a site planner needs the counsel and the tolerant understanding of city engineers and planning officers.

Some of the projects replace slum areas; these will often ask for the closing of old streets in order to permit the children to get to the project playground without crossing a traffic route. Other projects are located on vacant sites on the fringe of the city; these may need street extensions and new utility lines, the extension of waste collection areas and school capacity. Most of the new defense housing is of this kind. Each project raises many difficult problems for the city officials, solutions for which are expected almost over-night.

The burden of answering these questions falls particularly upon

A project in Memphis, Tenn., 900 dwelling units on the site of a blighted area, within walking distance of downtown employment. The project is on a main traffic route and is divided by a minor street into two superblocks. Several old streets were vacated. Note the parking courts in the triangular block, and the large playground near the center of the project

Housing for Negro families in Columbus, Ga. The court plan is successful on level sites. The simple and sturdy construction of the buildings implies low maintenance costs and long life without deterioration

In the center of Dale Homes, Portsmouth, Va., is an informal group of two-story row houses. The twin houses, one-story, are arranged in a great variety of groups, which are painted in different colors

The entrance to Dale Homes was carried between two existing trees

the city planning authorities. Site planning for housing, actually, is a phase of city planning, from which it varies only in scale and degree of detail—for site plans show with precision many things that city planners know only as generalities. A housing project is a little patch of the city plan, carried to completion.

That is a great opportunity. Like the city planner, the site planner wants to create a convenient and pleasant place for people to live: both of them seek safety, economy and efficient land use. But the city planner must think in generalities—he cannot know just what kind of people, or just how many of them, will occupy a certain block. And he must provide for the sale of the land. The designer of a public housing project knows precisely what buildings will be erected, how far apart they will be, and how many people will occupy them. He does not have to equalize land values by providing standardized frontage conditions.

Thus the site planner of large-scale projects can do things that the city planner cannot and should not do for individual houses. He can use a superblock plan, with access to the buildings by way of cul-de-sacs or narrow service lanes. That kind of plan might create a slum under ordinary conditions of ownership and occupancy. In a well-built housing project, with selected tenants, an alert manager, constant social guidance, and high-standard maintenance, the superblock is economical and efficient—besides being the best way to protect children from traffic accidents.

Functional Design of Streets to Serve Predetermined Land Uses

Large projects usually involve street planning. Site planners, in this connection, use the expression "specialized street design." To a city planner this phrase may suggest first the specialized design of high-speed traffic routes; to the site planner it suggests first the design of specialized residential streets and courts. Join these two special interests and you have the heart of modern city planning—the functional design of streets to serve predetermined land uses.

So the housing project site plan-

[illegible] studies his little segment of the city plan with everything under his control. He may locate his buildings and service areas and playgrounds first, and then design streets to serve them. He studies the existing street pattern and particularly the streets on which the project has frontage. The one best suited to serve as an outfall route for the project traffic is selected. But, if possible, the project streets do not break out directly on a fast traffic route. For greater safety, and to give the main street a freeway past the project, existing secondary streets are used for access to the main traffic street. Within the project the street system is planned to be an integrated part of an efficient "machine for living." There is usually a main project street, looped or bent to discourage the use of it for through traffic. The car parking—for low-rent housing projects cannot afford garages—is sometimes on the project street but is usually off-street, in parking courts. If coal must be delivered to the houses, there will be narrow service lanes giving access to the rears. The "front access" to the houses is almost always by a walk; fronting houses on streets is, as a rule, avoided.

A small project in Athens, Ga., built on a hillside. There is a small playground under the trees at the bottom of the picture

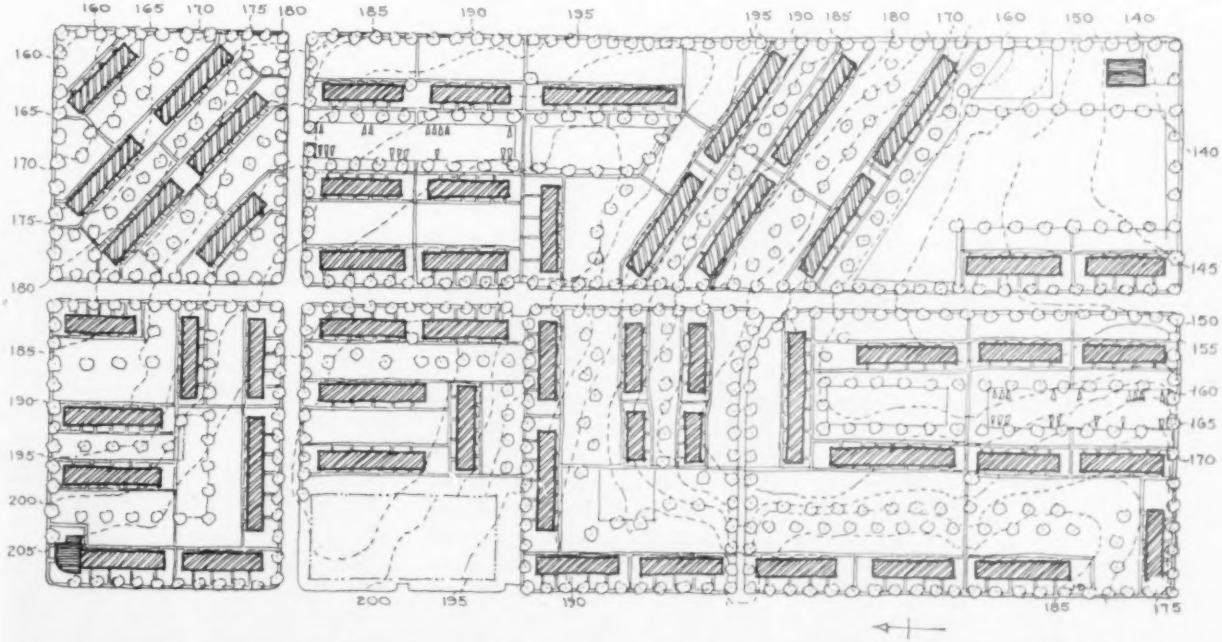
Economy and Livability

In all this, economy is the watchword. Site improvement costs must be squeezed to the last dollar. If the "site costs"—roads, walks, utilities, grading, and lawns—go up a hundred dollars, it means that 2 or 3 per cent fewer families can be moved out of the slums. Therefore, the houses must be arranged with reasonable compactness, the pavements must be no wider than is necessary, and the utility lines must be dimensioned closely in relation to the population of the project.

But along with economy, careful planning can assure satisfactory livability, to use a favorite word of the housers.

The idea of livability includes many things. First come light and air. Housing standards of spacing are high; even when the density

(Concluded on page 83)



In this South Omaha project, Omaha, Nebr., part of the existing streets (those with good pavement) were preserved in the plan. The buildings (row houses) are set on terraces following the natural topography

Central Recreation Building and Adjoining Play Area, Liberty Square Housing Project, Miami, Florida

Recreation Planning for Low-Rent Housing

By HOWARD L. WHITE
Chief of Community Relations, USHA

LOW-RENT public housing is more than shelter; therefore, certain play areas, sitting areas and indoor community spaces are required for the life of the tenants in the project. This means that at the time of site planning, consideration for recreation must be made, along with thought on type and arrangement of dwelling units.

The people living within the structures must be considered not only as individuals, but as groups requiring social contacts, leisure-time activities and other normal services. The plan of the well-considered project will include ample space outside the living quarters, so organized as to be attractive as well as useful for play, recreation, and services.

In making plans for recreation spaces within the project, it is necessary that consideration be given also to recreation areas, community centers and parks outside the project that are within a use distance. When considering site selection for a housing project, every effort should be made to see that a playground for children between the ages of 6 to 14 years is located within a quarter-mile of the project. A neighborhood playfield should be within one-half to one mile of the low-rent project, due consideration being given to a public park so that tenants of the housing project can reach the park by public conveyance with one fare.*

Central Recreation Area

Before approval by the United States Housing Authority, every project is required to provide outdoor play space in terms of minimum guarantees. It is recommended by USHA to the local housing authorities that such space should include a central recreational area immediately adjacent to a community building, and that this area should be developed for multiple use in order that many types of activities may take place in connection with the recreation building.

Outdoor space necessary for pre-school activities should be part of the central recreation area. This portion of the area should contain at least six times the area of the total indoor recreation space assigned to pre-school activities. This is in addition to the other requirements of the central recreation area, which also serves the school children and adults.

It is preferable that these pre-school areas be located on the southern side of the building, with direct access to the indoor pre-school space provided at grade. In projects of 300 dwelling units or more, it is advisable to provide other pre-school areas elsewhere in the project.

The minimum requirement for the central recreation area varies with the density per acre and the number of dwelling units in the project, as indicated in the following table:

Density (Coverage)	First 200 D.U. or Less	Next 100 D.U. Add per D.U.	Over 300 D.U. Add per D.U.
50%	1.25 acres	180 sq. ft.	120 sq. ft.
40%	1.00 acre	150 " "	120 " "
30%	1.00 acre	120 " "	100 " "

The central recreation area, and consequently the recreation building, should be near the population center of the project, yet sufficiently removed from the nearest dwellings to avoid discomfort from the noise of activities.

Experience has demonstrated that space devoted to central recreation areas in the project is easier and less expensive to supervise and maintain if it is kept in a single

* See front cover of this issue of THE AMERICAN CITY.

area. The requirements of the activities for school-age children, which are to be conducted in this space, dictate a single large area rather than two or more areas of smaller size scattered throughout the project.

The central recreation areas, besides providing for the special pre-school space, also include features for: (1) an apparatus area, containing slides, swings, balance bars and climbing structures; (2) a large open area for informal play and supervised games; (3) an area for quiet games, crafts, dramatics, and story-telling, and (4) courts and fields for softball, shuffleboard, badminton, basketball, handball, volleyball, paddle tennis, and horseshoes.

These areas should be well defined and segregated from each other by hedges or paths. Shade trees should be provided in the quiet-games area and around the borders, but at sufficient distance from courts and fields so as not to interfere with activities. Dimension and design requirements for courts and sports areas may be obtained from the local recreation department. If the central recreation area is not directly related to the community building, a shelter house should be provided with storage space, drinking fountain, and toilets, directly related to the outdoor area.

Family-Use Area

Within courts and between buildings, areas should be developed for the occasional use of families and neighbors. It is in these areas that additional pre-school activities can take place. These family-use areas should preferably be located within sight of each dwelling unit and easily accessible to building entrances.

The minimum size for the area devoted to family use should be around 1,200 square feet, meaning that the local housing authority allows about 25 to 30 square feet per dwelling unit for family-use purposes. If, in the case of dwelling units that have private yards, play areas are available in the individual yards, then the family-use areas can be reduced in size and number from the recommendations described above by approximately 50 per cent. Family-use areas are designed for activities that do not require professional supervision. The informal play and quiet activities, as well as the play of pre-school children on these areas, is supervised by mothers from the adjacent buildings.

It is the opinion of the United States Housing Authority that indoor space for community use should be provided in all projects. In order to insure the construction of indoor community space, USHA, in conjunction with various national and private recreational agencies, established a basic recommendation which would give to the housing project a guarantee of space for organized activities to take place. USHA recommends that for each dwelling unit in a project, 9 square feet be allowed as a minimum for community building purposes. That is, minimum community space for a project is calculated by multiplying the number of units in a project by 9. This recreation building should be directly related to space for outdoor community activities and any additional recreational areas which already exist or are to be developed.

Experience has shown that indoor community space should be centralized in one place on a project, preferably in a community building. This makes for economy and efficiency in operation and leadership. For safety it should be well away, or protected, from traffic streets, surfaced drives, or parking areas. It should be sufficiently removed from the nearest dwellings so that families at home will not be troubled with the noise of the activities.

In guiding local housing authorities on the construction and design of indoor community space, the following table has been designed for the purpose of giving rough distribution to square footage needed for

ORGANIZATION OF CENTRAL PLAY AREA AND OF COMMUNITY BUILDING IN LOW-RENT HOUSING

The central recreation area should provide for special pre-school space: also include features for (1) an apparatus area, (2) a large area for informal play, (3) an area for quiet games, and (4) an area for sports

Indoor space should be centrally located in terms of population, and in planning the functional use of space, the various activities which will be conducted should be considered

each type of room or facility in the community building:

Designing the Community Building

The meeting room should be large enough to seat approximately 15 per cent of the project population. It should be designed for multiple use so that it can be used for activities in the morning, in the afternoon, and in the evening, for various age groups. Folding partitions of a sturdy construction are advisable, so that it can be converted into smaller rooms. If there is no available kitchen in the building to service this room, a strip kitchen should be included for parties and home economics classes. Small rooms are designed in the community center buildings for use as craft workshops, social rooms, game rooms, party rooms, and library or club rooms.

Dwelling Units	Meeting Room (Multiple Use) (Sq. Ft.)	Small Rooms (Multiple Use) Number	Small Rooms (Multiple Use) Area (Sq. Ft.)	Kitchen (Sq. Ft.)	Storage (Sq. Ft.)	Coats (Sq. Ft.)	Toilets (Sq. Ft.)	Total Sq. Ft.
100	780	0	0	80	40	30	70	1,000
200	900	1 or 2	600	110	55	45	90	1,800
300	1,365	2 or 3	925	140	75	75	120	2,700
450	2,045	3 or 4	1,450	175	100	100	180	4,050
600	2,725	4 or 5	2,000	175	150	150	200	5,400
750	3,410	6 or 7	2,555	200	175	150	260	6,750
900	3,500	8 to 10	3,650	200	200	200	350	8,100
1,000	3,500	10 to 12	4,500	200	225	200	375	9,000

A part of the large meeting room, or a specially designed room for a *pre-school play center*, is recommended for each project. This facility should be at ground level, with direct access at grade with the outdoor area reserved for pre-school children. The pre-school room providing for play should be 400 to 600 square feet, with a folding partition to increase efficiency of use. Window to floor area should be computed at 1.4, with no less than 300 cubic feet of air provided for each child. Essential accessory spaces to this room are cloak-room, toilets, kitchen, health examining room, and offices. The whole pre-school unit should be compactly designed, eliminating stairs and corridors which make supervision difficult.

The kitchen should be large enough and located so as to serve as many separate rooms as need it. It can be used to serve meals or snacks in the meeting room or any of the social rooms. It is necessary for the proper operation of a nursery school. It can be used in classrooms for demonstrations of household equipment and for instructions in cooking. Additional strip kitchens may be necessary as noted above.

Every room should have some adjacent *storage space*. This is essential to multiple use of these rooms. Materials used by a pre-school group or by a sewing class, for instance, must be stored away so that the room can be used for other activities until the group or class meets again.

The coat room should be located convenient to the entrance and to the meeting room, and to those social rooms used by clubs, classes, committees, councils, and similar groups and organizations.

Toilets and drinking fountains should be directly accessible to all community rooms. Supervision is difficult and activities are interrupted if building design forces people to pass through several rooms to reach the toilets. This should be avoided. Toilets and drinking fountains should also be directly accessible (*not* through stairwells) to outdoor community areas which are adjacent or near to the indoor community space.

Principles—Not Standardization

Effort is made to avoid standardizing design of community facilities. After a local housing authority has become acquainted with the above-described requirements for indoor and outdoor recreation space, it is then possible to take the various recommendations and apply them in terms of the following planning principles:

1. *Community space must be designed to meet the anticipated requirements for normal community activities.*—Experience in occupied projects shows that tenants usually engage in pre-school activities, resident councils, sports, court games, club groups, homemaking classes, consumer study groups, first aid and health education, and other various recreational activities.

2. *Community space must be designed for multiple use.*—A housing project cannot afford to set aside indoor rooms or outdoor areas for one particular group or activity. At best, it provides only the minimum space, so that space must be designed for maximum use. There are, of course, exceptions, such as workshops, which do not lend themselves to multiple use.

3. *Community space must be planned in relation to the neighborhood surrounding the project.*—The project is a part of the surrounding community. Community space inside and outside the project should be pooled to receive maximum use both by people living inside the project and by people living in the neighborhood around the project. The neighborhood, not the project, should be considered the planning unit.

4. *Community space must be planned jointly with interested agencies and well-informed individuals.*—True neighborhood and community planning requires that health departments, settlement houses, recreation commissions, library boards, home economists, boards of education, city planning commission, sociologists, and others be consulted. Many of these agencies will be expected to operate in the community space in the project; experience has shown them to be reluctant to do so unless they have participated in the planning of that space.

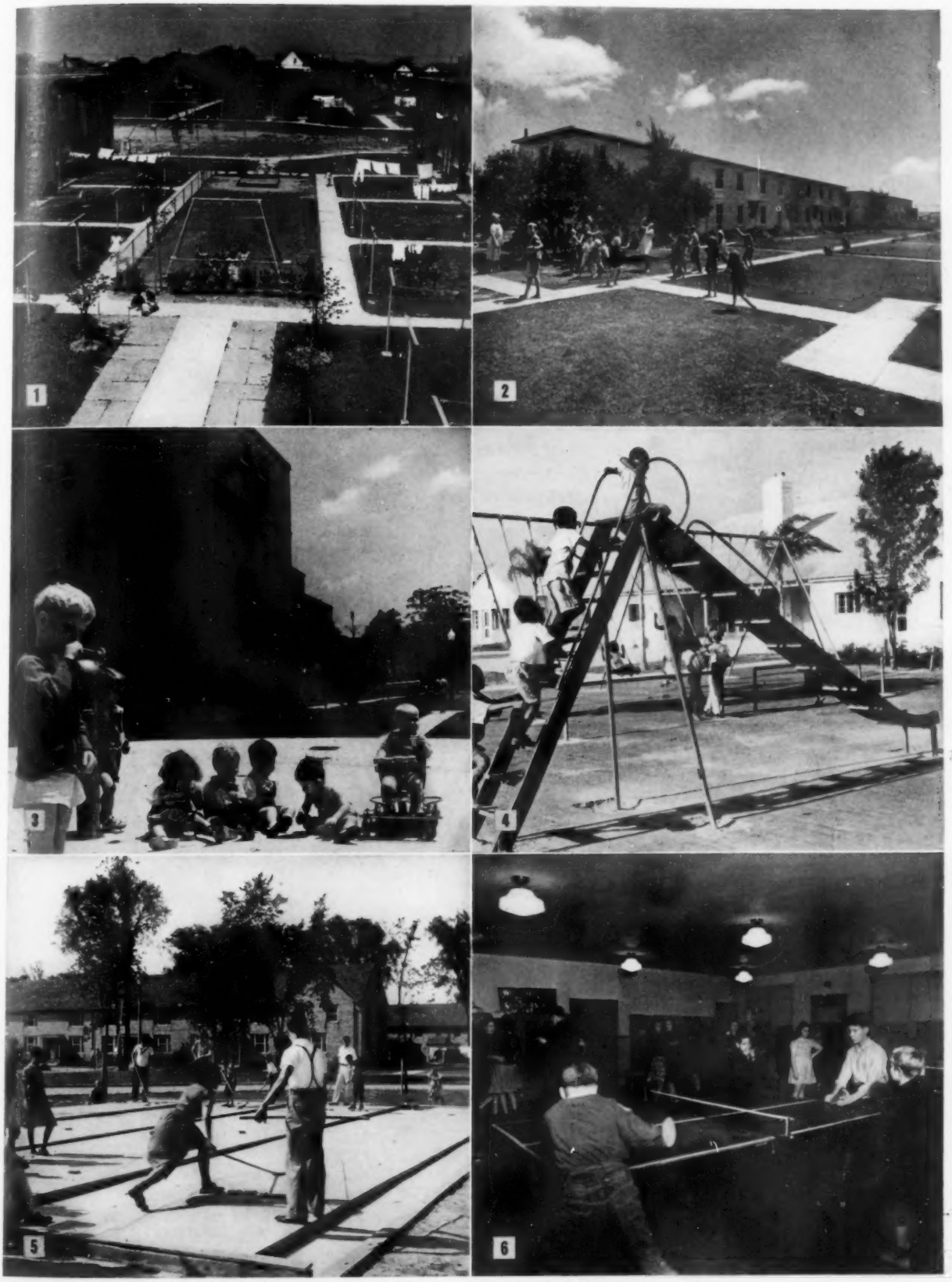
5. *Community space can be planned only on the basis of facts which show local needs.*—The facts governing the number, size, and type of community facilities to be built differ in each locality. It is impossible, as well as undesirable, to standardize community facilities throughout the country, or even in one state or region.

6. *Planning community space must start the moment the project is first conceived.*—Adequate planning takes time and must start early. It is expensive to design a project with the intention of using left-over space for community activities.

7. *Community space must be planned for economy and efficiency of supervision and maintenance,*—Agencies have refused to operate space in some projects now occupied, because of the difficulties or expense of supervision and maintenance. Otherwise satisfactory facilities will lie idle if they cost a disproportionate amount to operate. Economy in supervision and operation may be achieved by (a) concentration of community space in one building, (b) concentration of a general outdoor recreation space in one large area adjacent and accessible to the community building, (c) washable walls in community rooms, (d) hard surfacing on areas subjected to intensive use, and others.

The physical plan of housing with consideration for recreation is a major factor in cementing the interests of the project together to promote better living and greater tenant self-sufficiency. Housing projects should include necessary recreation facilities, in order to be regarded as self-contained residential units. Therefore, low-rent housing makes every effort to practice good neighborhood planning in terms of housing and recreation.

For other articles and items in this issue on housing and problems of national defense, see pages 3, 33, 38, 47, 55, 67, 79, 101, 103.



TYPICAL RECREATION FACILITIES IN PUBLIC HOUSING PROJECTS

1. *Garfield Court, Long Branch, N. J.*
2. *Kinney Place, Corpus Christi, Texas*
3. *Ellen Wilson Dwellings, Washington, D. C.*
4. *Liberty Square, Miami, Fla.*
5. *Parklawn, Milwaukee, Wis.*
6. *Gonzales Gardens, Columbia, S. C.*

The Use of Precast Concrete Ditch Lining for

Malaria Control

in Chatham County, Georgia

"THE guiding principle of our whole program of malaria control," said Charles Heard Field, Malaria Control Engineer of Chatham County, Georgia, "has been construction from the viewpoint of future maintenance requirements. There is no purpose in malaria-control drainage that cannot be properly maintained; it results in only temporary relief. We are after permanent results, and are doing all we can to obtain them." The fact that the methods of ditch lining and sodding used in Chatham County have been adopted as standard for the state by the State Health Department seems to indicate that the principle is a sound one, as does the added fact that the methods have been recognized by the Rockefeller Foundation, which has sent representatives from such countries as China, Venezuela, Panama, and India, to study it.

One of the first things that had to be done in Chatham County was to fill in the old, ineffective ditches that had been dug years before and had long since become obsolete. Practically one-fourth as many linear feet of old ditches are being eliminated as the total of new construction and reconstruction. Reconstruction or relocation of old ditches keeps fair pace with new construction.

Ditch Lining

The first ditch-lining efforts in the county were begun in 1938. The first project was experimental, being located at the plant of the National Gypsum Co., some miles outside the city limits of Savannah. Old concrete reclaimed from state highway reconstruction was hand-broken for use as coarse aggregate. The Gypsum Company furnished sand and cement, and the actual lining was done by convict labor. About 1,700 feet of ditches traversing the company's property were lined, and formed the foundation of the present program.

The Gypsum Company installation, as well as some others that followed it, were of the monolithic type. It soon became apparent that this method of lining the county's ditches would be unsatisfactory if applied to the county as a whole, because of the high volume of ground-water seepage. In many instances it was found necessary to install seepage cut-off drains in the toe of the bank slopes before the monolithic lining could be laid. With a maximum elevation of about 40 feet above sea-level, and an average level of about 25 feet, it was obvious that ground-water drainage would be a matter of primary concern. Experiments were therefore begun which resulted in the present methods of using precast, unreinforced concrete lining in the primary and main lateral ditches of the county.

Very early in the program a parabolic center invert design was adopted. A considerable saving in concrete is effected by using a parabolic section rather than a circular annulus of the same chord, due to the fact that a minimum slab thickness is maintained through a greater proportion of the slab section.

Installation of butt-joint tile seepage intercepting drain on monolithic lining. These drains are not needed with the precast linings now in use

Precast Lining

It was not until June, 1940, that the present casting and curing plant was built. By that time it was felt that local problems had been pretty well solved, in so far as design was concerned, and that they could be used anywhere in the county. Therefore, forms were built and casting began in earnest.

The plant was set up as a production line plant, with 230 forms arranged in parallel rows for casting both types of sections. A 1:2¾:3¾ mix is used at present, but probably will be changed in the very near future to approximately 1:3:4½, as the result of experiments now being conducted with a specially arranged vibrator. Two standard designs are used, one for ditches up to 4-foot bottom width, another for bottom widths between 4 feet and 8 feet. Slabs for the first type are 2 inches thick. The parabolic invert section, used either by itself or in assembled units with flat side slabs, has a chord width of 20 inches and a depth of 6 inches. The second type, composed entirely of assembled units, has a parabolic center invert section of 28 inches chord width by 5 inches depth. Slab thickness for this latter type is 2½ inches. All slabs are 3 feet in length, and no reinforcing is used.

After curing in the forms for 24 hours, the sections are removed to the storage yard, where they remain for a minimum curing period of two weeks before being used.

The forms used in casting the center sections each hold two 3-foot inverts, while those for casting the flats hold four slabs each. In full operation, the plant as now arranged can cast 420 lineal feet of completed ditch section per day. Since it began operations, in June, 1940, over 17,600 lineal feet of as-

Close-up of a Crew Casting a 28-Inch Invert

sembled ditch sections have been cast.

The main advantage claimed for the precast lining is that it can be laid in a ditch that contains a moderate amount of running water. Another, however, is that almost three times as many feet of precast lining can be laid as monolithic in a given time, by the same size crew, under local conditions. Also, with the type of joint developed by Mr. Field, it is unnecessary to provide weep-holes, since the joints themselves, being uncemented, serve this purpose. Nevertheless, they are still tight enough to prevent the growth of vegetation through them.

The Program

"To date, we have lined somewhat over 6 miles of main ditches," Mr. Field said. "I am not prepared to say how many miles we will line ultimately, but, as we have better than 1,200 miles of main and lateral ditches in the county, it is unlikely that we shall be able to line all of them. However, we are developing a method of eliminating this necessity on the minor laterals, by using butt-joint tile subsurface drainage, which has proved to be very satisfactory.

"I doubt very much if our methods could be used with any success in a section of the county where there is a serious frost condition to contend with, since we lay the forms directly on the ditch bottom, without using gravel or cinder foundation. The lining is laid to grade, so as to eliminate unevenness and prevent pooling. However, our ditches are unfortunately not self-cleaning, since we have a grade here that is negligible, almost a minimum for flow. It will vary according to terrain from 0.05 to 0.1. As a result, our ditches will always require a certain amount of maintenance, but of prime importance locally is the fact that lined ditches eliminate the growth of aquatic vegetation entirely.

A Typical Drainage Slab Assembly, Showing the Broken Joints

"It has been found, since the program was launched, that after stabilization, which usually requires a year, the cost of maintaining a lined ditch is not over 15 per cent of the cost of maintaining an unlined one.

"Present production at the casting plant requires the use of from 300 to 340 barrels of cement and 270 to 340 cubic yards of aggregates a month. We keep a production and cost record, and a perpetual inventory, and use WPA labor entirely, having about 38 employees at the plant, with from 200 to 400 on drainage projects in the county.

Costs

"We find that a 20-inch invert costs about 31 cents a lineal foot, cured; a 28-inch invert, about 36 cents. A 36-inch complete assembly costs about 49 cents per lineal foot, and consists of a 20-inch invert and two 9-inch flats, one on either side. In place, a 36-inch lining will cost about $70 per 100 feet, average. This does not include the cost of grading and sodding the slopes. A 60-inch assembly costs $1.14 per lineal foot cured and about $170 per 100 feet in place. This is the largest assembly we have made, so far, though we expect to lay about 2½ miles of 8-foot lining later this year.

"We feel that we have made very satisfactory progress," Mr. Field continued, "and of course are gratified that our methods have been adopted as standard for the state. In this connection, we were recently authorized to develop a similar program for the city of Savannah. The city has appropriated $40,000 to be used on a WPA project to line about 100,000 feet of main and lateral ditches within the city limits."

Callable Bonds Refunded at Low Interest Rates

The Municipal Finance Officers Association calls attention to the savings which many municipalities are making by calling in bond issues on which they have been paying as high as 5 per cent, and refunding them at much lower interest rates.

Among the cities cited by the Association as refunding bond issues recently are Detroit, which sold $51,157,000 in bonds at an average interest cost of 2.64, lowest in the city's history; Kansas City, which refunded a $11,000,000 water term bond issue to obtain interest rates of 1.89 and 1.84 per cent; Oil City, Pa., which refunded $105,000 in 4¾ per cent bonds at .92 per cent; and Pontiac, Mich., which since August 15, 1939, has completed four refunding operations involving $2,945,000 in bonds which originally paid 4½ per cent interest, the new lower interest rates representing a total interest saving to the city of Pontiac of more than $180,000.

Street Cleanliness— A Municipal Asset

East Orange, N. J., a Residential Community, Uses Machine Cleaning the Year Round

By Harry Wilkin Perry

ATTRACTIVENESS of a city's streets has real, even though intangible, value. This is particularly true in a suburban, residential city. Homeseekers are drawn to a community that is clean and orderly and that shows regard for beauty. They are influenced strongly by the external appearance of homes and streets, which reflect the character of the residents. It pays a city, therefore, to have well-paved streets, properly maintained and kept clean.

East Orange, N. J., is one of many communities in the New York metropolitan area which shows the dwellers' love of beauty and cleanliness. It is a city of 69,000 population and 12,000 to 15,000 buildings, most of which are modest residences, since there are almost no industrial plants and only a small percentage of apartment buildings. A large proportion of the residents commute daily to New York, ten miles to the east, or work in the adjoining cities of Newark, Bloomfield and Orange. All residential streets are lined on both sides with shade trees which are trimmed and sprayed in spring and summer by the Shade Tree Commission.

All street work, including construction and maintenance of sewers and pavements, is under direction of the City Engineer, William D. Williigerod. In an area of, roughly, 4 square miles, the city has 75 miles of streets, of which 60 miles are paved to the curbs with bituminous macadam, and 15 miles are similarly paved but still have 3-foot-wide stone-block gutter pavement.

Two main business arteries extending west from Newark trisect the city and have a very large volume of through traffic, Central Avenue alone carrying about 40,000 motor vehicles per day. Almost complete displacement of horses by motor vehicles in the last two decades has both facilitated and interfered with street-cleaning work. It has reduced the quantity of refuse to be removed, and the constant swift passing of vehicles blows leaves and other light litter to the gutters, making sweeping of the middle lanes unnecessary.

The Parking Menace

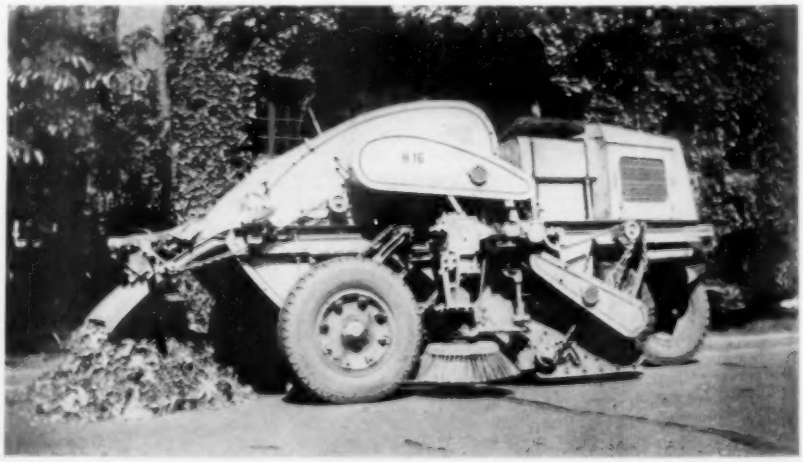
On the other hand, both day and night parking of automobiles in the streets interrupts the continuity of sweeping and snow plowing, causing some delays and increase of cost. Despite a prohibiting ordinance, the Police Department has been unable to prevent all-night parking. Also, during a snowstorm, the large tires and heavy weight of the vehicles compact the snow so firmly that unless plowing starts at once and proceeds as fast as possible, the plow blades cannot bite into and displace the packed snow.

Machine-Cleaned Streets

All smooth pavement is machine-swept with two Elgin sweepers, one bought about four years ago and the other near the first of 1941, when an original sweeper of the same make was retired after fifteen years of use.

The work is done at night, starting at 2 A.M. and continuing until 9 A.M., when the operators spend another hour in the garage cleaning and servicing the machines. One-and-a-half miles of main business street and half a mile of side streets at intersections are swept seven nights a week. One-sixth of the remaining 58 miles of side and residential streets is swept each of six nights, so all these are cleaned once a week. This makes a total of 130 gutter-miles of sweeping per week.

The machine is driven along one side of a length of street close to the curb, cleaning a swath 9 feet wide, then back along the opposite gutter. At intervals of about an hour,



The Elgin Pick-up Sweeper owned by East Orange, N. J., is shown just as it dumped a load to be hauled away by a motor truck

the period depending on the season and other conditions, the operator dumps the filled hopper at the gutter and telephones the location to the Street Department control station, which directs one of the Department's four motor trucks to the place, and the refuse is collected within an hour. When filled, the truck is driven to a dump five or six miles from the city center. One truck and driver are kept busy at this removal work, at a cost figured at $10 to $12 per day, including driver's wages, housing in the city garage, interest, depreciation and maintenance.

About 225 truck loads of refuse, amounting to 1,000 cubic yards, are removed during 150 to 160 nights, exclusive of autumn months, when fast-falling leaves increase the volume to an average of 1,500 cubic yards per night, and winter months, when weather conditions make sweeping impracticable.

One sweeper works every night; the other about four nights in seven, used mainly to catch up with work stopped because of bad weather.

The 15 miles of block-paved gutters are swept with hand brooms by a crew of four men, because the mechanical sweepers cannot sufficiently remove the dirt from the interstices, and the sweepings are carted to a dump by a city truck. This work costs ten times as much as machine sweeping—$7 per curb- or gutter-mile compared with $0.70 by machine, including all overhead.

Costs of mechanical sweeping fluctuate from year to year owing to weather and other conditions. For 1940 they were as follows, fractions of a dollar omitted:

Operators' wages (two)	$2,078
Gasoline	279
Oil and grease	43
Broom replacements	727
Maintenance (tires, accessories, repairs)*	250
Overhead (housing, interest, depreciation)	1,446
	$4,823

* Estimated. The actual figures cover the 15-year-old machine replaced by the new one at the year's end.

Although the machines are housed in a city-owned garage, the space they occupy is prorated at $8 per machine per month, or $96 a year.

A Fox Snow Loader Cleaning Up After a Heavy Storm in East Orange, N. J.

Snow Removal

The other phase of the Street Department work is snow plowing and removal, made necessary by year-round use of automobiles. No attempt is made to remove all the snow that falls in the streets, for the cost of haulage would be too great for the state of the city's finances. The general intent, however, is to keep all streets open to traffic at all times by plowing the snow into the gutters and completely removing it only from the business streets and crosswalks. In addition, as a safety measure, rock salt or a mixture of cinders and salt, is spread on all approaches to intersections to prevent collisions that would result from sliding vehicles.

The equipment used in this work consists of ten ordinary blade plows for attachment to motor trucks, a Barber-Greene snow loader with crawler treads and conveyor belt, a Fox conveyor-belt loader on a four-wheel chassis, and four centrifugal sand spreaders towed by trucks. One loader has been in use for seventeen years and the other for fourteen, but they still give efficient service.

Plowing and snow hauling are done with ten or more trucks hired from private owners, the city having none for scavenging work, which a private contracting firm performs. Plowing starts as soon as enough snow has fallen for the plows to begin moving it, and continues without interruption until the snowfall ceases and double lanes are open on all thoroughfares, for this is a case where haste doesn't make waste but avoids it. As much of the snow work as possible is done at night to avoid inconvenience to traffic and interference with the work by parked vehicles.

The loaders are essential for rapidly removing snow banks from business streets and at intersections. In routine work they load not less than 300 cubic yards per hour.

The volume of snow trucked away varies greatly from winter to winter. In the winter of 1938-39, 14,000 cubic yards were hauled; the following winter only 9,000, and in the winter of 1940-41, 24,000, which probably was more than the average over the last decade.

Salt vs. Ice

If snow packed by traffic freezes, it defies plowing and gradually becomes solid ice that in the past has sometimes remained on the streets for several weeks until a thaw came. Moreover, compacted snow at intersections with streets having car lines is cut into channels along the rails by street-car wheels, forming deep ruts that are a nuisance and danger to traffic.

City Engineer Willigerod believes that the solution of the packed-

snow problem is the use of rock salt scattered on the snow by centrifugal spreaders. Last winter the Street Department used 167 tons of salt in this way and had no caked snow on Main Street. From 2 to 6 tons are required per mile of street at each application. The usual price of rock salt in bags is $12 per ton. If spreading begins just before or at the start of a snowfall, the salt melts the snow quickly, forming a saline solution that prevents freezing to the pavement. Scattered on compacted snow, the granules thaw their way down through it in an hour or two, honeycombing it so that vehicles quickly break up the blanket. Furthermore, the solution seeps under the snow toward the gutters and catch-basins, undermining snow piles left by the plows. Then, in event of rain or thaw, the piles can be carried off by the sewers.

Use of salt instead of cinders or sand has the added advantage that it leaves nothing on the street surface to be swept up or washed into and fill the catch-basins, making more frequent cleaning-out necessary. There is no point in saving in cost of street surface work at the expense of the sewer department; both are under the jurisdiction of the City Engineer. Any excess cost of salt over cinders is compensated by saving in cost of catch-basin cleaning. In 1940 the Street Department paid a total of $2,841 for salt and cinders and for labor in spreading them last winter.

Costs

The city makes no emergency appropriations specifically for snow work, but $5,000 is added to the annual budget of the Street Department to cover the cost, which is estimated to average about that amount. It varies so much, however, that actual figures for any one winter have little significance. Thus, 8,000 cubic yards of snow were loaded and trucked to dumps in the 1938-39 winter at a cost of 61 cents per yard; the following winter the cost was only 47 cents, and the best record has been 27 cents. These differences are due to the nature of the snow, whether dry and light, wet and heavy, loose or frozen, and to atmospheric temperature, which make loading either fast or slow. Types of trucks used also affect the cost, by capacity of body and by quickness with which they can be maneuvered.

Filling Expansion Joints Made into a Winter Job

University City, Mo., Uses Two Trucks for Equipment Needed for this Winter Maintenance Operation

WITH 25 miles of concrete streets and 5 miles of sheet asphalt pavement on concrete bases in which the expansion and contraction joints open up in winter, the street officials of University City have decided that winter is the best time to fill these joints and cracks. On days when the pavements are dry the regular street forces go about pouring the cracks.

During the winter of 1940-41 approximately 30 miles of street were covered, using 5,000 gallons of 115 penetration Standard Oil of Indiana asphalt. Annual bids are taken for the asphalt needed for this work. The first truck of the maintenance crew carries two coilless burners or torches, which are used to heat the material along the crack and to burn off extruded material at high joints so that the crack can be scraped out to a depth of 1 inch to remove old material.

The second truck carries a 165-gallon Littleford asphalt kettle and three pouring pots, two of which are of the old conical type, and the third a new Tarrant pot with a long spout. This truck also carries sand and fine graded cold patch material. All joints that have spalled out are carefully painted with cutback asphalt and filled with the cold patch.

After the old joints have been raked out to a depth of 1 inch, they are poured to within ½-inch of the top, since this has been found to prevent extrusion in summer. The temperature on the streets in University City ranges from 22 degrees to a maximum of 150 degrees pavement temperature. For this reason it is felt that it is best to pour the joints when the temperature is between 20 and 40 degrees F. The asphalt is heated to 350 to 375 degrees F., as shown by the kettle thermometer before pouring.

All street maintenance in University City is in charge of James Leahy, Superintendent of Streets.

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University of Michigan Offers Graduate Course in Regional and City Planning

RECOGNIZING the urgent problems of community planning in need of solution and the demand for men adequately trained in the field, the College of Architecture and Design of the University of Michigan announces a graduate program in Regional and City Planning.

To work effectively in the field of planning, the student must qualify as to knowledge of economics, geography, political science and some aspects of engineering and law. Men may enter the course following graduation in Architecture and Landscape Architecture, provided they can meet the general qualifications or if they have had acceptable experience.

As a major interest, students will analyze and develop actual planning problems under the charge of the Faculty. Visiting lecturers will act as consultants.

WELLS I. BENNETT,
Dean, College of Architecture and Design

HARLOW O. WHITTEMORE,
Chairman, Department of Landscape Architecture

JEAN HEBRARD,
Professor of Architecture

GEORGE G. ROSS,
Associate Professor of Landscape Architecture

Visiting Lecturers—1941-42

TRACY B. AUGUR
Assistant Director, Tennessee Valley Authority

FREDERICK BIGGER,
Planning Consultant, Federal Housing Administration

WALTER H. BLUCHER,
Executive Secretary, National Association of Planning Officials

JACOB CRANE,
Assistant Coordinator, Division of Defense Housing Coordination

EARL S. DRAPER,
Federal Housing Administration

CHARLES W. ELIOT,
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TIRRELL J. FERRENZ,
Executive Assistant, Home Owners' Loan Corporation

HAROLD MERRILL,
Executive Officer, National Resources Planning Board

ROBERT B. MITCHELL,
Home Owners' Loan Corporation

When a Defense Boom Hits a Defenseless Village

By James E. Zachary
State Defense Council of Indiana, Indianapolis

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CHARLESTOWN, IND., outstanding example of the impact of the defense boom, has now passed the crisis in its development as a city. Henceforth, its growing pains should be more nearly normal, albeit more frequent than those of the average growing town, since it will still experience an accelerated expansion for another year.

In the summer of 1940, Charlestown was a sleepy little southern Indiana community of 936 people with no premonition of the chaos soon to appear. During the period from August to December, restaurants increased from one modest beanery to fourteen thriving establishments, drugstores numbered three instead of one, liquor stores increased 300 per cent, homes that had housed less than 1,000 were accommodating 2,500 people, and hundreds of families were living in trailers. The industries which caused the sudden influx of workers into Charlestown were a $74,000,000 smokeless powder plant constructed by E. I. du Pont de Nemours & Co., and an $18,000,000 bag-loading plant constructed by the Goodyear Engineering Corporation, a subsidiary of the Goodyear Tire & Rubber Co.

FEDERAL WORKS AGENCY PHOTO BY HIGHTON

Change of shift at the Indiana Ordnance Plant, operated by du Pont at Charlestown. Ramps carry the workers over the new four-lane highway to the 20-coach trains operated by the Baltimore & Ohio Railroad between Charlestown and Louisville, Ky.

In a city such gains would not seem very astounding, but to the inhabitants of a small village the quadrupling of their population and the attendant shattering of their tranquillity was disturbing indeed. The sleepy peacefulness of Charlestown had been its most cherished possession, and the things that destroyed that peacefulness destroyed the town that the residents had known and loved since 1806. In its stead rose a dusty, bustling, small city which had all the problems of a metropolis and no adequate facilities for solving them.

Upon requesting and receiving from the state the help of a full-time planning engineer [the author of this article], the Town Board started to chart its path toward becoming a city. A coordinator's office was established and work of guiding the growth of Charlestown was begun. First, an interim zoning ordinance was drafted and passed, so that the city could regulate the location of the many new structures which are arising. Following that, a building code was adopted and the engineer was given complete charge of zoning and building. With these legal safeguards and with the constant supervision of the engineer's office, practically all the structures erected were of a type which would benefit the town after the boom passed. Wildcat construction was held to a minimum. The practice of converting garages into living quarters was discouraged and finally reached a standstill.

Light Stops Traffic Twelve Miles Distant

Another problem which early became acute was that of traffic control. Charlestown had no previous ordinances regulating either the movement of traffic or the parking of automobiles, so that the town's two policemen were faced with a serious problem in both instances. Traffic on the state highway was so heavy that a traffic light 12 miles away in Jeffersonville stopped automobiles at Charlestown. Since this heavy traffic made it exceedingly difficult to leave the parking lots at the ordnance works, many of the construction employees parked their automobiles in the town. This blocked the streets all day and left many residents with no place to park their own cars.

Such conditions necessitated an immediate traffic code with some peculiar sections. Provision had to be made to take care of the town residents first and then to aid the transient motorists. The plant employees' needs were not considered,

WORK PROJECTS ADMINISTRATION PHOTO

One of a score of trailer camps at Charlestown, site of the Government-du Pont $75,000,000 smokeless powder plant. WPA is planning recreation programs for such camps

since adequate parking facilities were available at the military reservation. A traffic survey was made and an ordinance drafted which restricted parking at certain hours and in certain areas. A windshield sticker was given to Charlestown residents only, which made it possible for them to park in otherwise restricted places and times. While this may not have been a strictly legal procedure, conditions were such that drastic action had to be taken immediately. The strict enforcement of this ordinance did a great deal toward facilitating the control of traffic.

Garbage and Waste Collection

Before many weeks had passed, the garbage problem was crying for attention. Prior to the boom, the Town Marshal had taken care of garbage and rubbish collection in his periods of inactivity. Now that neither he nor his new assistant had any spare time, and the town had no finances to cope with this situation, a new system had to be devised. The problem was solved by the drafting of a garbage ordinance and the selection of some person who was willing to undertake the collection and make arrangements with the various householders for payment for the tri-weekly service. Since a reasonable fee was charged —50 cents a month for a house or trailer, and $1.50 a collection for business establishments—the people soon accepted this radical departure from the former collection method, and the collection agency is now a growing concern.

Lack of knowledge of the location of people also became serious. Many times death messages were undelivered because of inability to find the person addressed. With the aid of the high-school civics class and the NYA, a census was made which was invaluable to the

FWA PHOTO BY HIGHTON

Owners of the house on this Charlestown corner, like many townsfolk, have rented the yard to families of newcomers. Each family lives in a tent attached to a rough wooden base. This is the family of a worker in the Indiana Ordnance Plant

Post Office, the telegraph companies, and to people seeking relatives or friends. A trailer and rooming-house registration form was devised in order to have a continuing record of arrivals and departures. These registrations were checked each week by an NYA boy assigned for that purpose. Some interesting facts were found by this study. In the last year there have been over 8,000 residents in Charlestown with a maximum at any one time of 3,753. These newcomers represented forty-six states and one territory, and a surprisingly large number had brought their families, even from the more distant states.

Serious Problems of Education and Recreation

The many new children from these families seriously overtaxed the physical capacities of the school. September, 1940, showed less than 500 pupils, while April, 1941, showed 800 pupils in a school designed for 500. A survey of needed facilities was made by a group of school authorities from Indiana University, and from the information thus compiled an application was made for assistance under the community facilities law. There is an excellent possibility that a modern building may be erected by next year, but meanwhile Charlestown will have cause to worry because of its inadequate facilities and its undermanned teaching staff.

One of the most serious problems with which the town was confronted was the matter of recreation. People who work all day under the tension which is always evident in a boom area, demand leisure-time activity. Lacking such an outlet for their energies, they will turn to less healthful pursuits. With 2,000 people living in 800 trailers in 21 licensed camps, a system of decentralized recreation had to be devised. The WPA undertook this important task and assigned Lester E. Campbell, a vet-

FEDERAL WORKS AGENCY PHOTO BY HIGHTON

Some of the 250 homes being rushed to completion by the Federal Works Agency to house defense workers in the Charlestown area

WORK PROJECTS ADMINISTRATION PHOTO

Imhoff tank at the WPA-constructed sewage-disposal plant at Charlestown. When some of the 25,000 workers at the powder plant began pouring into town, the need for sanitation was vital. A WPA project to install sewers and a sewage-disposal plant was arranged quickly and the project rushed to completion

eran in the field of recreation, to the southern Indiana area. Mr. Campbell soon had a program started which included educational classes, handicraft classes, library services, dancing classes and athletic activities. He also had a dance band organized which provided music for weekly dances and concerts. Such a diversified program paid dividends, not only in providing leisure-time activity, but also in making the problem of crime prevention much easier than the Police Department had thought possible. From news stories emanating from other defense boom spots, it is evident that such a program is direly needed in most of them.

Community Service Defense Council

A Community Service Defense Council, organized by Virgil Martin of the Federal Security Agency, has undertaken the responsibility for future developments in Charlestown. Since this Council is a nonpartisan board, composed of representatives of all service organizations and clubs in the town, it forms a powerful bloc to work for the benefit of the community. Such a council will be invaluable in times of stress and should be considered seriously as a means of community expression in normal times.

Charlestown has had no mail delivery, but the Council has taken steps to remedy this. A system of numbering the houses is being worked out, and the Post Office Department has promised to institute mail carrier service as soon as numbers are given to the residences. This is not a large order in itself but is merely one of the services that are necessary in the metamorphosis of a village into a city.

The problem of helping Charlestown has been considered by many governmental agencies, but special recognition is due to the Indiana State Board of Health, through Lee S. Moore, sanitary engineer; U. S. Public Health Service, Indiana State Police, Indiana Department of Public Welfare, Work Projects Administration, National Youth Administration, and Federal Security Agency. In his work for Charlestown, the writer had several occasions to consult with both Lawrence Sheridan and Joseph L. Fisher of the National Resources Planning Board; and L. Segoe, of Cincinnati, prepared the zoning ordinance.

Without the freely given aid of all these agencies, Charlestown would not be in its present healthy condition.

FEDERAL WORKS AGENCY PHOTO BY HIGHTON

End of the 4:30 P.M. shift at the Indiana Ordnance Plant at Charleston. Twelve miles of this new four-lane highway was completed in 70 days

Zeolite Water Softening with Anti-Corrosion Control

New Plant at Grinnell, Iowa, Furnishes a Water of 85 ppm Hardness from Water of 513 Total Hardness

The 16-Inch Well with Sterling Turbine Pump Which is the Main Source of Water for Grinnell, Iowa

THE new zeolite water-softening plant at Grinnell was placed in operation the first of March, 1941, to treat a water of 513 ppm total hardness so as to deliver a water of around 85 ppm hardness to consumers. During the same period, to remove the accumulated deposit in the pipes, and to prevent corrosion, a specially prepared anti-corrosion treatment and caustic soda has been added to the treated water in very small quantities and has effectively loosened this material, which has been removed through hydrants by flushing and opening dead ends at the low points in the system.

Sources and Pumping

At present the city relies on three wells for its water supply, a large well which is pumped at the rate of 700 gpm and two smaller wells which are used only intermittently. The large well is approximately 2,700 feet deep, and has a 16-inch casing at the top. It is pumped by a Sterling turbine pump driven by a 100-hp General Electric motor with the pump set at a depth of 420 feet, giving a drawdown of 95 feet when pumping at 700 gpm. The two smaller wells are pumped by air-lift, and are blown on alternate weeks to test them and then held as standbys.

The water from the large well is pumped through Elgin zeolite water softeners and sent to a reservoir of 1,000,000 gallons capacity, being aerated as it enters the reservoir. This reservoir is connected with a 185,000-gallon reservoir, which is also used for storage and to which the two small wells deliver the water. From the smaller reservoir the water is picked up by a booster pump, put through the softener and delivered to the larger reservoir when the valves are properly arranged for this service.

The pump room in the main station, located in the center of the city on the same plot of land with the three wells, the 185,000-gallon reservoir and the 300,000-gallon Pittsburgh - Des Moines elevated steel tank, contains the booster pumps, compressor and chlorinator. In order to provide sufficient air for the air-lift pumping of the two smaller wells, a 2-stage Ingersoll-Rand compressor driven by an I-R oil engine is installed, supplemented by an I-R Imperial Type 10 compressor driven by a 100-hp Westinghouse motor. The piping and valves are so arranged that either of the two smaller wells may be pumped by either of the air compressors, or both by one. There is a separate small I-R gas-engine-driven compressor for starting the large oil engine. Computations show that if a turbine pump were installed on one of the smaller wells, it would be possible to eliminate all the compressed air equipment installation, which now must be maintained in order to insure pumping capacity for the wells.

Two 500-gpm single-stage Cameron pumps with 30-hp Westinghouse motors are installed in the pump room for high-lift service. The east pump can take suction from the small reservoir and pump through the filters to the large reservoir, or can pump direct from the large reservoir to the elevated tank. The west pump is so arranged that it can pump only from the large reservoir to the elevated tank. The softened water is sterilized to insure its sanitary quality by a Wallace & Tiernan chlorinator, which is set to provide a residual chlorine of 0.2 ppm in the mains. All the control panels for the pumps are centralized in the pump room, and close by is a large tool-board for all wrenches required for pump maintenance.

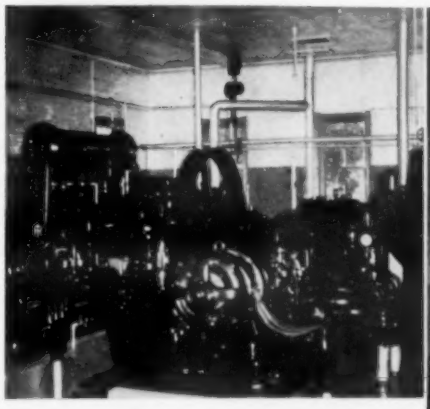
Two 96-inch-diameter by 108-

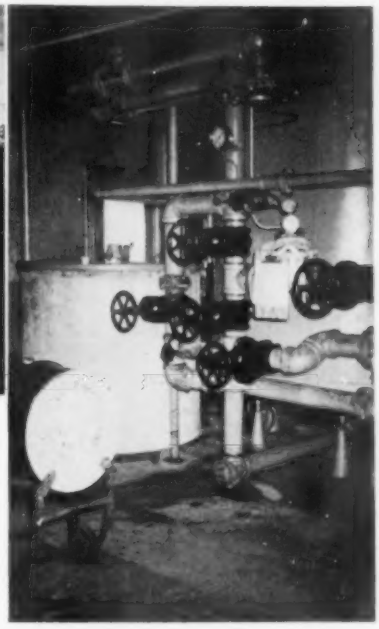
The Main Pumping Station and Treatment Plant of the Grinnell, Iowa, Water Works, with the 300,000-Gallon Elevated Storage Tank in the Background

inch shell height Elgin Double-Check zeolite water softeners are installed adjacent to the pump room. They are equipped with a strainer system at the bottom, covered by three grades of gravel growing smaller at the top; and the rest of the pressure cylinders is filled with synthetic zeolite, at the top of which is the Elgin Double-Check manifold system for preventing the loss of zeolite in washing. At one side of the softeners is a brine measuring tank for the regeneration of the zeolite; and outside the building is a large circular concrete brine saturator tank below ground, which will hold about two carloads of salt. This is covered with water to maintain a saturated solution, which is delivered by a brine pump from this tank to the inside brine measuring tank. When filled to the proper elevation, the brine measuring tank contains 1,440 pounds of common salt in solution.

The two softeners are run at the rate of 400 gpm each but are kept out of step so that one can always be in service to insure the softening of the water to zero hardness. This zero hardness water is mixed with one-quarter its volume of unsoftened water by means of an automatic proportioning valve. A Hersey meter on each softener measures the amount of water passing through the softener. By means of an electric control, when 160,000 gallons of water has passed through a softener it rings a bell, warning the operator that the softener has approximately reached its limit of softening to zero hardness. From that point on, tests of the effluent are made at regular intervals until the softener shows hardness in the water passing through the zeolite. This usually occurs between 170,000 and 180,000 gallons passing through the softener.

Inasmuch as there is some iron content in the water averaging 0.3 ppm, some red sludge accumulates on the top of the zeolite. For this reason, the softener after having been shut off is back-washed with unsoftened water until the water runs clear. This usually takes about 15 minutes at a rate of 600 gpm. It is necessary during this period to reduce the rate of operation of the other softener in order to maintain the 600 gpm back-wash when the delivery from the well is only 700 gpm. When the backwash water begins to run clear, the saturated salt solution is fed to the top of the softener with an ejector operated off the city pressure, and it takes about 20 minutes to add the 44 inches of brine from the tank. It would be possible to add the brine in from 3 to 4 minutes, but doing it more slowly and bleeding the raw water from the bottom of the softener at 100 gallons per minute has been found to give the most effective distribution of the brine through the zeolite for regeneration. As soon as all the brine has been removed from the tank, the brine pump starts automatically to refill it for the next regeneration. After all the brine has been delivered to the zeolite, the raw-water valve is again opened to rinse out the brine and clear the softener for service. This is done slowly, taking about 1 hour and 15 minutes to wash out all trace of the brine. As soon as this is completed, the softener is ready to be put back into service.





Above, the Pump Room at the Main Station and, at Right, the Saturated Brine Tank and the Operating Valves of One of the Two Elgin Zeolite Softeners

Anti-Corrosion Treatment

The anti-corrosion treatment consists of the use of caustic soda and a specially prepared anti-corrosion treatment. The treatment is prepared in a special two-compartment into which 10 inches of water is first run and then 140 pounds of caustic soda added slowly and stirred constantly. To this is added a predetermined amount of Elgin anti-corrosion solution and stirred while water is admitted to within 3 inches of the top of the tank. These materials create considerable heat in the upper compartment of the feeder, which is allowed to cool, and then a valve is opened and the solution is drained off to the bottom compartment of the feeder, and the valve closed to create a pressure chamber in the bottom.

An orifice in the pump discharge line gives a 4-pound differential in pressure, which forces the treatment solution from the bottom pressure tank into the discharge line. The regulator valve is set so that the solution is fed at the rate of ¼-pound of concentrated solution per 1,000 gallons of water pumped. A float in the pressure tank drops 3 inches for each 100,000 gallons of water pumped. This provides a check on the proper rate of feed of the anti-corrosion treatment. The double-deck tank is 30 inches in diameter and 48 inches high, divided at the center by a horizontal diaphragm.

After the initial sloughing-off of the deposits in the pipes, this treatment has been successful in preventing further deterioration. Prior to the treatment, the deposits in 6-inch mains were from ¾- to 1-inch thick. The sections of pipe which have been removed from the line since the treatment began have shown these deposits to have been almost entirely eliminated.

Increasing Use of Water

The improvement of the water supply by softening has definitely increased the use of water in Grinnell. The town is 97 per cent metered, and the main discharge from the plant is also metered. The average consumption for several years has been about 200,000 gallons daily in winter and 440,000 gallons daily maximum in summer. During the hot weather of July there was a considerable increase in the use of water, and this increase is expected to continue as people discontinue the use of cisterns in which they formerly collected rainwater.

The plant is operated in two shifts: the day shift from 8 A.M. to 5 P.M., and the night shift from 11 P.M. to 7 A.M. Most of the pumping and softening is done on the night shift; and during the winter all the pumping is done at night because of the smaller consumption and the better power rate at that time.

Carl Peters is Superintendent of Water Works in Grinnell, Iowa, and in charge of the operation of the water-softening plant. We are indebted to Mr. Peters and R. R. Saunders, day operator, for the information supporting this article.

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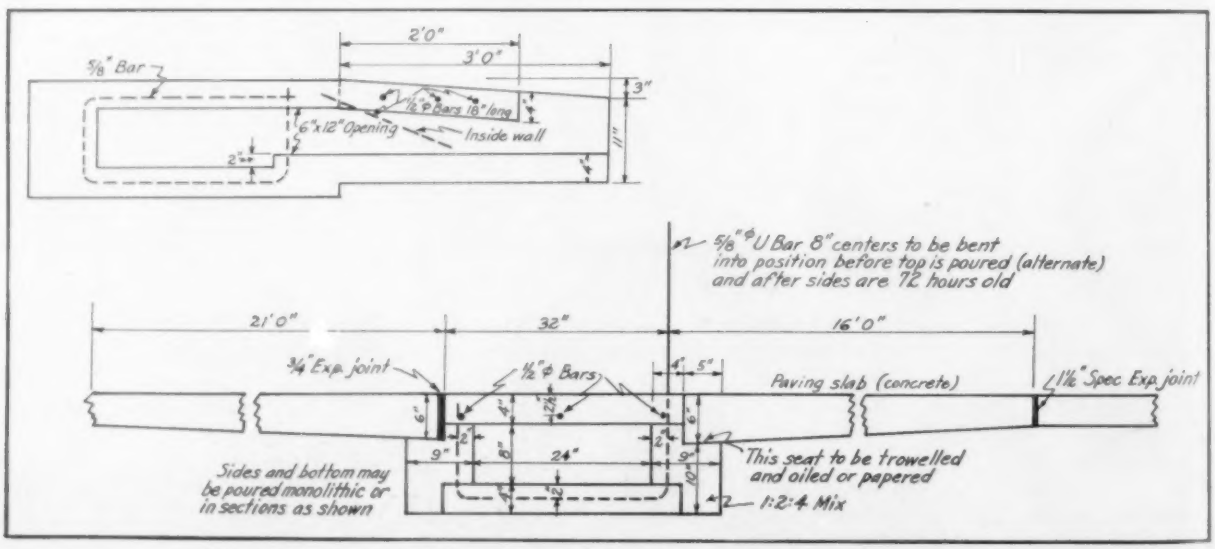
Large Street Inlets Designed Not to Shove Covers

Method Used in Galveston, Texas, Furnishes Example for Cities with High Temperatures and Heavy Rains

THE problem of draining storm water from streets in level country where heavy rains are experienced is one which still bothers many street and sewer officials. Inlets of various types have been designed to afford as rapid drainage of water from the gutters as possible. In the cities in the South where high temperatures prevail, there is always the problem of an adequate opening for the water and at the same time a possible rapid change in temperature which may cause the pavement to shove pre-cast or cast-in-place slabs which cover vertical inlets.

W. B. McGarvey, City Engineer of Galveston, has solved the problem of an adequate inlet and the prevention of shoving a pre-cast concrete cover slab in a very satisfactory manner. The diagram below shows the installation clearly. Prior to the use of this new design, considerable trouble was experienced with the concrete paving slab pushing the top of the inlet off the seat, creating a severe hazard to vehicular traffic. This same type of inlet is used for cross-overs where water is carried from one side of the street to the other, and in some cases to inlets located beneath the slab in the center of the street.

Galveston is one of those cities with practically no fall for sewers or storm drains. This means that a great deal of sediment and street wash is deposited in the storm sewers. Hosing has been found to be the only satisfactory method of clearing these sewers after storms. The storm drains are all square concrete boxes, for pipes are not practical because of the lack of headroom between the street surface and gutter grade.



Plan and Section of the Inlets and Street Crossings for Storm Water in Galveston, Texas

Demountable Homes for Defense Workers

New TVA Dwelling Has Both Mobility and Permanence

THE END SECTION OF A COMPLETED HOUSE IS UNBOLTED AND THE ROOF IS LOWERED
WHEN IT ARRIVES AT THE HOUSE SITE, THE SECTION IS HOISTED FROM THE TRAILER
IT IS LOWERED ONTO TEMPORARY RAILS AND ROLLED INTO PLACE ON THE FOUNDATION
ADJOINING SECTIONS ARE BOLTED TO EACH OTHER THROUGH ROOF AND FLOOR JOINTS
IT IS ROLLED FROM THE ASSEMBLY LINE ONTO THE BODY OF A TWO-WHEEL TRAILER
SECTION BY SECTION THE HOUSE IS TRANSPORTED TO ITS PERMANENT FOUNDATION
THE ENTIRE HOUSE CAN BE DELIVERED AND ASSEMBLED IN LESS THAN ONE DAY

Above are shown the steps involved in delivering and assembling a TVA demountable house. It is built on assembly lines at a central plant, where complete bathroom and kitchen equipment is installed. Construction, at an average of three houses a day, requires no special skill or materials. Houses are moved by sections on truck trailers, roofs being collapsible to allow headroom in transportation

THE accompanying illustrations show one of the demountable houses being built by the Tennessee Valley Authority for defense workers in the Muscle Shoals, Ala., area. Their particular value at the present time is that they can be moved from defense areas after the present emergency, and that, unlike much emergency housing, they are said to be as durable and habitable as conventionally built houses.

TVA is building three sizes: two-, three- and one-bedroom dwellings with four, five and three portable sections respectively. Nine working days for a crew of fifteen—or 135 man-days—are required for the construction of one two-bedroom house, only the last day being needed for delivery, assembly and the finishing touches. Average cost for all dwellings will probably be somewhat less than $2,850.

COMPLETELY ASSEMBLED AND READY FOR OCCUPANCY, THE DEMOUNTABLE HOUSE IS NO DIFFERENT IN APPEARANCE AND DURABILITY FROM A CONVENTIONALLY BUILT HOUSE. IF A TIME COMES WHEN THE HOUSE IS NO LONGER NEEDED AT ITS ORIGINAL SITE, IT CAN EASILY AND ECONOMICALLY BE MOVED TO A NEW LOCATION

—Further details with photographs and plans, can be found in an 18-page report, "TVA Demountable Houses for Defense Workers," Department of Regional Studies, Tennessee Valley Authority, Knoxville, Tenn.

Unique Charging Device for Refuse Incinerator

Larchmont and Mamaroneck, N. Y., Form Joint Refuse-Disposal District and Build New Plant

By Henry W. Taylor
Consulting Engineer,
New York City

Garbage Truck Dumping into One Compartment of the Receiving Hopper, Which is in Horizontal Position

In 1938, the village of Larchmont and the unincorporated section of the town of Mamaroneck obtained from the Legislature authorization to form a Joint Refuse Disposal District, with a Joint Commission having the authority to construct a refuse incinerator which would serve these two separate municipalities. The Commission consists of the Supervisor of the town of Mamaroneck, and the Mayor of the village of Larchmont. The legislative bill included many reservations of the Commission's action, and the Town Board and the Village Board of Trustees are frequently called upon by the Commission for approval of project plans, etc. The Commission is, however, authorized to make capital and maintenance expenditures and to construct the project and operate it under funds supplied jointly by the two separate municipalities.

The town of Mamaroneck includes a third municipal unit, namely the village of Mamaroneck, and attempts to include this third factor in the Joint District were unsuccessful. The village of Mamaroneck is equipped with a separate incinerator unit which serves this municipality exclusively.

Project Organization

The Joint Incinerator Project presents two unique features, viz., special legislation providing for the formation of a Joint Refuse Disposal District, and the method of handling materials in the project itself. The legislation providing for the Joint District, which is called the Larchmont-Mamaroneck Joint Garbage Disposal Commission, was carefully worked out, and although it gives the Commission itself ample authority to proceed in matters of both construction and maintenance, the two separate municipal boards are given the opportunity to pass on the project in an advisory manner and are given certain rights in connection with the fundamentals of the project. The Commission is supplied with funds by means of authorized bond issues, one-half by the town, and one-half by the village, aggregating a total of $130,000 for capital expenditures. To supply money for maintenance, each municipality includes in its budget an amount of money to provide for the maintenance cost of the Commission, and the exact determination of the proportion of the maintenance expense will be determined on the ratio of tonnage delivered to the plant by each municipality. Thus capital expenditures are absorbed by the bond service of the separate municipalities, and the expenses of operation are allocated to the respective yearly budgets in proportion to the use made of the project by each municipality.

The Incinerator

The incinerator project is located in the town of Mamaroneck, but very close to the northerly corporate line of the village of Larchmont. The selected site provided a steep rock ledge against which a three-story plant could be erected, while only the third story, or charging room, of the plant is exposed to view on the south elevation overlooking the village of Larchmont. All footings, including the chimney, rest on ledge rock, and the

The receiving hopper tilted so that the load has just leveled off and is about ready to slide to the charging hopper, which is concealed by the plate in the foreground. The remote controls for the tilting hoppers and truck doors are seen in the right foreground

The north and east elevation of the incinerator building. From left to right at ground elevation are: entrance to main corridor, ash room door, office door, washroom window, ash room door, and shop room window. The second-floor windows flood the stoking aisle with light. The third story is the charging-room floor, the latter being the only story of the building visible from the south. The landscaping had not been completed

chimney base is set on the rock knoll, thus saving some 26 feet of chimney construction as compared with the elevation of the lower turning plaza, from which the residue of the incinerator is removed from short ash tunnels.

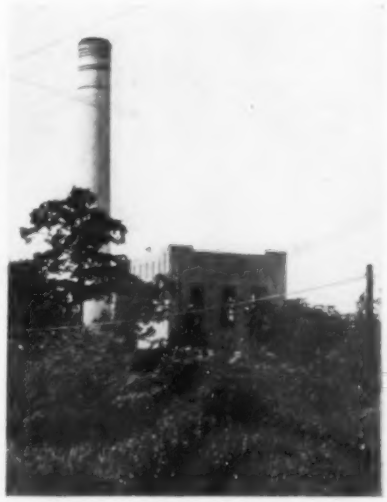
The lower floor includes the entrance and stair lobby, two separate ash rooms, an office room, a washroom and a shop. The second story contains two 60-ton incinerator units, each unit having two 30-ton cells. The units are of the L type, and the two combustion chambers are set adjacent to the centerline of the building. On this floor there is also located an auxiliary oil-fired hot-water heating boiler, which will be used for building-heating and for hot water supply when the incinerators are not in use, or as a make-up during extreme cold weather. Heat for hot water and building purposes is ordinarily supplied by hot-water coils in the final expansion chamber, these coils being connected to a 4,000-gallon hot-water storage tank above. When the temperature in this tank drops to a given temperature, an automatic aquastat control starts the auxiliary heating unit.

The charging-room floor consists of a narrow strip of concrete floor on the east, north and west sides. The south side of the room contains two 16 x 16-foot door openings, with motor-driven rolling steel doors. The remainder of the floor space is taken up by two steel receiving hoppers and an elevated platform and tank room. Each of the hoppers is 16 x 16 feet, and the hoppers hang down below the floor level 5 feet 6 inches. The hoppers are equipped with sideboards adding another 5 feet to their depth. These receiving hoppers are hinged at the north end, while the south end rests on the dumping log. One illustration shows a truck dumping into one compartment of a receiving hopper, when it is in the horizontal position. After the truck has discharged its load and moved away from the door, the rolling steel door is closed by the operator, and he then lifts the south end of the receiving hopper so as to tilt its sloping bottom towards the charging hoppers. This tilting operation can be continued to raise the sloping section of the receiving hopper to an angle of about 60 degrees to the horizontal. On raising the hopper, the first action to take place is a top rolling of the refuse, which levels off the truckload of material. The initial load discharged into the hopper is then displaced to the hinged end of the hopper, and the full depth of the hopper is again available at the dumping log end to receive subsequent loads of refuse. As the tilting angle is increased, the refuse slides down into the charging hoppers, filling them until a resistance against sliding is produced.

Novel Receiving Hoppers

Each of the receiving hoppers will hold about 35 cubic yards of refuse when level full, and when heaped to their capacity, after tilting, are expected to hold about 45 cubic yards each. One illustration shows a load of refuse leveled off along the bottom of the receiving hopper and about ready to slide towards the charging hoppers. In this illustration the charging hoppers are not visible, but they lie below the receiving hopper hinge, and are constructed with three sloping sides and one vertical side, the latter being in line with the plate in the foreground which constitutes the north side of the receiving hopper and extends 3 feet 6 inches above the floor for the protection of the operator. The remote controls for both the rolling steel doors and the receiving hoppers are shown. Limit switches have been provided so that the rolling steel doors cannot be raised in case the receiving hoppers are not in a horizontal position, and so that the receiving hoppers cannot be raised if the truck doors are not completely closed. Other limit switches control the total travel of the receiving hoppers. This charging device avoids the objectionable features of a floor dump and the handling of material by man or tractors from various sections of the floor area to the charging hopper openings. It represents an expediency to avoid a floor dump plant and an escape from the cost of installing a refuse pit, bridge crane and bucket, for a plant of this size. The metal hoppers are of course readily cleaned at the end of each day, and confine the material to a considerable depth without spreading indiscriminately over a large area.

In operation, the process of feeding the charging hoppers is as follows. The receiving hopper is lowered to a horizontal position, level with the dumping log; it is then possible to open the truck door, and the refuse truck discharges its load into one or the other of the two compartments of the hopper. When the truck leaves the door opening, the door must be closed by the



The South and East Elevation of the Incinerator Building, as seen from the Village of Larchmont, N. Y.

operator; he then tilts the hopper until the load just received has been displaced by tilting toward the hinged end of the hopper. If the operator needs to fill one of the two charging hoppers fed by this receiving hopper, he continues to tilt the receiving hopper until the desired amount of material slides along the bottom of the hopper into the charging hopper. When the latter becomes filled, it automatically prevents further sliding of material. The receiving hopper is then slightly lowered below the sliding angle so that when one of the charging hoppers is emptied by the stokers below, additional material will not slide into the charging hopper while the charging gate is open. To refill the empty charging hopper, the operator returns the receiving hopper to a sliding angle, and the empty hopper receives sufficient material to fill it and prevent further sliding. The operator then reduces the slope of the receiving hopper to prevent unwanted sliding, or lowers the hopper in readiness to receive another truckload of material; or he receives a signal from the weighing room that a truck is approaching the upper plaza to discharge its load.

The receiving hoppers are lifted by two cables attached to the dumping log end of the hoppers, with electric-driven hoisting winches located behind the charging aisle, and controlled by push-buttons. The use of these hoppers has indicated that sliding action alone supplies material to the charging hoppers about 90 per cent of the time, and that the charging floor operator is only infrequently required to break up a bridging of material in order to encourage the sliding or rolling of refuse. In initial operation, it was found that the slight roll produced by the hinge introduced sufficient resistance to interfere with a ready sliding of material. A galvanized plate about 24 inches wide was attached to the bottom plate and allowed to extend over this roll of the hinge, and the initial hesitation toward sliding was overcome.

In order to accommodate these underslung receiving hoppers, which extend about 6 feet below the charging room floor, the furnace units were arranged so that the combustion chambers and dampers are located either side of the centerline of the building, while the preheaters with their smaller dampers are located underneath the ceiling plates which form a roofing underneath the receiving hoppers themselves.

An elevated platform, on the level of the top of the sideboards of the hoppers, was installed between the two receiving hoppers. Part of this platform consists of checker plate and constitutes an area upon which excess readily combustible material can be stored for starting the fires and for wet days. The northerly section of this elevated floor area houses the 4,000-gallon hot-water storage tank, which is served by hot-water coils in the common expansion chamber of the two units adjacent to the chimney, or by the auxiliary oil-fired hot-water boiler on the stoking-room floor. These two heating elements work in parallel, and the latter is automatically introduced in case forced circulation through the various heating systems depreciates the tank temperature to a determined low level.

The Furnaces

Each incinerator furnace is equipped with an auxiliary oil burner located in the end of the furnace chamber opposite the bridge wall. The capacity of these burners is 30 gallons of oil per hour, and it is intended to use them for the initial warming of the furnaces before the first charge of refuse is delivered to the cells. Such operation, if proved necessary or advantageous, will avoid the usual possibility of projecting the first volatiles from initial charges against cool brick surfaces, with the resulting possibility of incomplete combustion. The burners project a flame across both cells and are located high enough so that there is no interference with the sloping fuel bed which occurs immediately after a fresh charge to the unit.

Personnel

Operation of this project was initiated on August 18, 1941, and after 30 days of trial run, as called for by the specifications, and the performance of the various specified tests, the plant was turned over to the Commission. The general contractor was Domenico LoCascio, of Pleasantville, N. Y., who sublet the incinerator equipment to the Morse Boulger Destructor Co. The heating and plumbing contracts were executed by John Winkel Co., of Larchmont, and the electrical contract by George H. McKee, Inc., of Mount Vernon, N. Y. The writer designed the plant, supervised its construction, and will supervise the operation of the plant in behalf of the Commission for three months after the project has been taken over by the owner.

The members of the Commission are Bert C. McCulloch, Supervisor of the town of Mamaroneck, and Harry E. Goeckler, Mayor of the village of Larchmont. Arthur Richards is the Village Engineer of Larchmont, and A. J. Foote is the Town Engineer of Mamaroneck. The Commission is guided in legal matters by William J. McWilliams, Attorney for the village of Larchmont, and John L. Delius, Attorney for the town of Mamaroneck. Hugh E. Cailler was the former Secretary and Treasurer of the Commission, whose duties were assumed, after his retirement, by W. Edward Bracken, the present Secretary and Treasurer. W. Corwin is the Superintendent of the plant.

To Prevent Collapse of Grandstands

SEVERAL TIMES A YEAR hastily constructed grandstands collapse under the sudden strain of an exceptionally exciting moment during a game, a parade, or a fair. How strong do portable grandstands have to be to prevent such collapse?

At the request of the Pennsylvania Department of Labor and Industry, the American Standards Association has undertaken tests to show what happens when occupants of a grandstand suddenly rise together or suddenly return to a siting position, or when they grip the front of the seat boards with their hands. In a publication, "American Standard Specifications for Portable Steel and Wood Grandstands" (see listing on p. 115 of this issue), technical information is given on the number of pounds of stress per linear foot and per square foot that may be expected as a result of movements of occupants of a grandstand. Specifications for safe grandstand construction are included and others may be published.

New Records System Catches Up on 16,000 Utility Debts

By Otto H. Adams
Superintendent,
City Light and Water Utilities,
Fort Wayne, Ind.

THREE years ago the Fort Wayne municipal utilities came to grips with the hard fact that they had 16,000 bad debts out of 29,210 water and 28,862 electric accounts, and 40 per cent of the delinquents were still receiving service. No collection effort was attempted on any account until it got behind by $10.

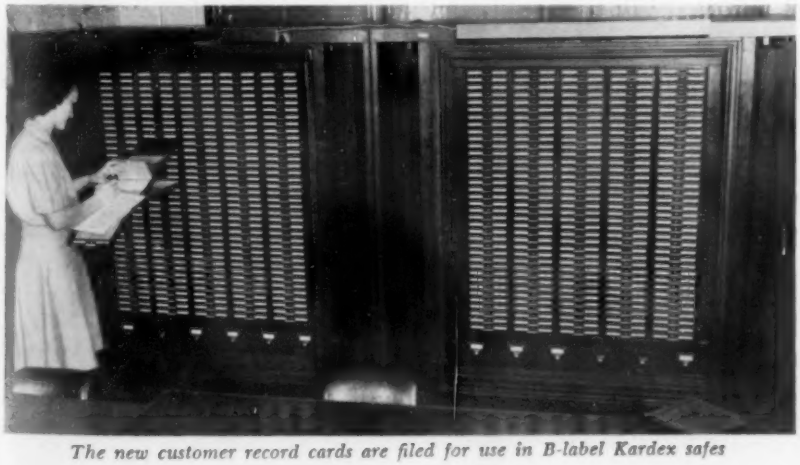
The entire records system was overhauled, and a modern system based on an informative Customer History Card was instituted. One of the first steps was to use only one set of folio numbers and to get the water and electric accounts of a person under one name, such as James B. Smith (and not J. B. Smith for water and James B. Smith for electricity, as had been the case with 18,000 accounts).

The forms described below indicate the system in operation in the Fort Wayne Municipal Light and Water Utilities. A complete set of specimen forms, A to F inclusive, may be secured on request to the Public Utility Division of Remington Rand Inc., Buffalo, N. Y. Form A is a permanent application which shows the complete history of all transactions with the customer. This application is signed once by the customer, and on any additional move the information is merely verified. We show the deposit record, the inactive account, record, occupation, business address, date of original contract, customer's signature, property owned, name of husband or wife, addresses served, date connected, date disconnected, district and folio number, rates, and class of service. All these customer history record cards are filed in phonetic Soundex order. On the reverse side (Form B), we show the application for service and a complete up-to-date collection record of this customer.

When the customer is required to give a deposit, a triplicate deposit Form C is made out. The original is given to the customer, the duplicate is retained as an auditing copy, and the triplicate is filed in the customer history record pocket. This means that all deposit records are made in one writing. If a guarantor's agreement is necessary, Form D is given to the customer, who fills it out. For the protection of the customer and the utility, Form E is carried in the guarantor's pocket to show the number of accounts guaranteed, so that he may not go over the limit established by his credit rating. Form F is a multiple-copy delinquent notice which is made out for each customer. The original is sent to the customer, and the copy is used for the collection department record, the collector's record, and follow-up necessary for collction department routine.

When this system went into action, the first of this year, all city employees were notified to pay up. The multiple-copy collection notice was instituted, a notice being sent to every customer in arrears as much as $3, and a copy of the notice was given to one of our 13 collectors. Each collector makes 60 to 65 calls per day. There are two cut-off men, one for water and the other for electricity. There is now an agreement between the municipal utility and the private utility that a customer disconnected cannot be reconnected to either system until his old bill has been paid.

The use of notices for arrears increased the cashier's receipts an average of 12 per cent per month, and delinquent notices decreased 10 per cent during the first three months and are now normal. *Arrears decreased at the rate of* $10,000 *per month,* until we are operating on a basis comparable with any utility today. The unit plan of bookkeeping is to be installed, together with a permanent service application form which will again materially reduce the number of clerical operations and records necessary for the proper office conduct of this or any other utility.

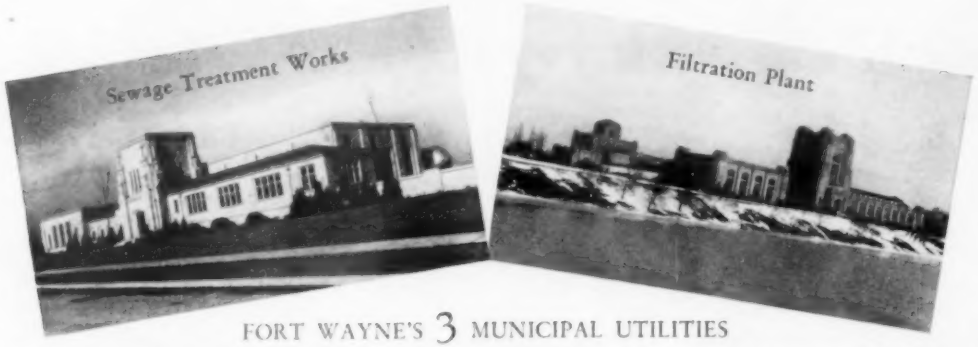


The new customer record cards are filed for use in B-label Kardex safes

Recreational Facilities and Municipal Utilities in Fort Wayne

Fort Wayne, Indiana's second largest city, is noted for its low utility and property-tax rates, its health and safety records, its housing projects, and its development of public parks and recreational facilities.

Its population of 118,410 lives in 30,000 residential units, a major portion of which are occupant-owned. The recreational needs of all classes of citi-



FORT WAYNE'S 3 MUNICIPAL UTILITIES

zens are served by 17 parks and 22 playgrounds, with facilities for baseball, softball, swimming, tennis and many other recreational needs. There are 904 acres in the parks and playgrounds, valued at $1,600,000. The municipal beach, at the St. Joe River, is one of the finest recreational attractions in the Middle West.

Since early in the present century, Fort Wayne has operated its own light and power plant. (Citizens voted in favor of building their own plant, on November 6, 1906.)

Light rates immediately fell from 10 cents per kwh to 8 cents when City Light began service, and have been steadily downward; the present maximum rate of 3½ cents per kwh today is the lowest in Indiana and among the lowest in the country.

City Light furnishes electric current to 28,862 homes, industries, and businesses, an increase of 6,368 customers since 1934. Over the same period there has been an increase of 117 per cent in the power generated at the debt-free plant, and total annual sales have doubled. There are 325 miles of distribution line, 10 miles of which are underground.

Fort Wayne has owned and operated its own water utility since 1881 and now serves 29,210 customers and has 295 miles of water main. The number of meters in service in 1934 was 26,677. There has been an increase of 26 per cent in the pumpage at the filtration plant, to 3,162,921,800 gallons in 1940. The filtration plant has bonded indebtedness of approximately $1,800,000, which is being paid with the revenue secured from the service charge for the use of water.

Fort Wayne's new sewerage system, with its modern sewage-treatment works and nearly 30 miles of new underground sewers, was completed November 30, 1940, making a total of 250 miles of underground sewers. The total investment in the new improvement is $5,200,000, the city's share being $3,000,000, financed by bond issue against the revenues of the utility over a 30-year amortization period. The rate schedule was determined by an investigation of similar plants throughout the country, and the method adopted was found to be the most satisfactory means of establishing an equitable schedule free from elements of unfairness to any customer.

The sewage-treatment works serves over 28,000 customers, providing Fort Wayne with a new municipal utility, separate from the City Light and Water Utilities. In addition to contributing to the relief of flooded streets and cellars, the improvement reclaims the St. Joseph, Maumee, and St. Mary Rivers from sewage that formerly poured into them, resulting not only in a cleaner river, but a cleaner atmosphere, and a more healthful city.

• • • —

Housing Figures Classified

TABLE 1. DWELLING UNITS VACANT FOR SALE OR RENT, IN GROUPS OF URBAN PLACES CLASSIFIED ACCORDING TO SIZE OF PLACE AND IN RURAL TERRITORY, FOR THE UNITED STATES: 1940

Area and class of urban places	Number of urban places	Number of dwelling units		
		Total	Vacant, for sale or rent	
			Number	Percent
Continental United States	-	37,335,266	1,882,392	5.0
Urban territory	3,464	21,622,454	921,689	4.3
Places of 1,000,000 or more	5	4,712,557	274,442	5.8
Places of 500,000 to 1,000,000	9	1,865,133	86,138	4.6
Places of 250,000 to 500,000	23	2,354,491	102,678	4.4
Places of 100,000 to 250,000	55	2,241,481	86,766	3.9
Places of 50,000 to 100,000	107	2,118,945	82,055	3.9
Places of 25,000 to 50,000	213	2,106,560	70,090	3.3
Places of 10,000 to 25,000	665	2,829,324	93,979	3.3
Places of 5,000 to 10,000	965	1,912,217	65,281	3.4
Places of 2,500 to 5,000	1,422	1,461,746	60,260	4.1
Rural territory	-	15,712,812	960,703	6.1
Cumulative summary:				
Places of 100,000 or more	92	11,173,662	550,024	4.9
Places of 25,000 or more	412	15,399,167	702,169	4.6
Places of 10,000 or more	1,077	18,228,491	796,148	4.4

This table, based on the 1940 Census of Housing, is reproduced from a September 8 release of the Bureau of the Census. The Bureau points out that these vacancy figures reflect conditions existing on April 1, 1940, and, while not everywhere indicative of current conditions, can serve as a basis for studies of current vacancies.

Local Government Is News—X

City Hall and the Citizen—A Century Ago and Today—Bringing the Citizen to City Hall

By PHILLIPS BRADLEY

THIS question of developing a broad public relations program at City Hall is one which is worth viewing in historical perspective. Why is it that the whole question is so much more difficult today than a hundred years ago? Perhaps the key to this question is found in the very growth of our large cities. When everyone was more or less directly in touch with City Hall, it was not a matter about which officials needed to be concerned. Today, however, when City Hall is a long way off—both geographically and psychologically—from most, the very purposes and program of efficient government need to be brought home to the people consciously and by well-planned means of communication.

The change during the century in the problem which City Hall faces in this field can be seen through the eyes of the shrewdest observer of American life and politics who has ever written about America—the Frenchman, Alexis de Tocqueville. In his "Democracy in America," which appeared in 1835, he pointed out that politics—which should now include administration—was the very life-blood of the community. In commenting on town government in New England, he observed that every adult male could look forward to holding some public office at some time during his life. Tocqueville thought that this fact was the best guaranty of wide public interest in civic affairs. If people had a direct concern in local government, they could not help having an interest in it. Even outside New England—the home of the town meeting—many citizens in our villages, towns and small cities, then and since, have had the same kind of interest in their government because they too hold some public office or serve as volunteers or part-time workers in their town or city hall.

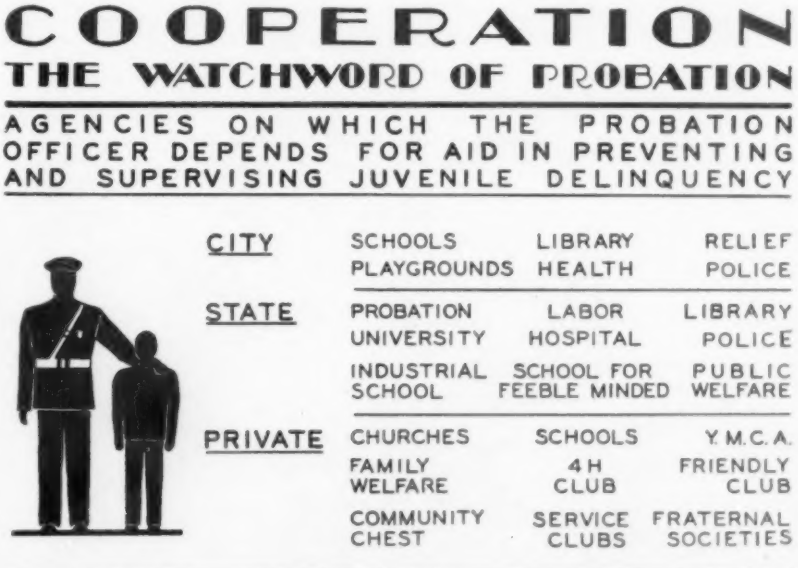
This shift in the relation of the citizen to his local government explains why it is so important today that City Hall should reach out again into the community. Some of the ways of doing so have recently been presented to the New York State Conference of Mayors by Elton D. Wollpert, Assistant Director of the Institute for Training in Municipal Administration. What he has to say on this subject is important—to every city hall in the country.

He believes that it is possible to "recapture some of the spirit of identity that once existed between citizens and city officials by erasing the sharp line that has been drawn between the citizenry and the city hall. This may best be done by encouraging citizens to take a more active part in their local governments, and by encouraging city officials to come out of their official shells and to become more active in the non-governmental life of the community." What are some of the ways which can help to make this come true—in 1941 in our great metropolitan communities as well as in smaller cities?

Citizens as Advisors

The first way which Mr. Wollpert suggests is to bring citizens directly into city government as advisors. He would not substitute laymen for expert administrators. He believes, however, that "private citizens can be used to supplement the service of regular city employees. The most common device for fitting the layman into the administrative set-up is the advisory board or committee. The variety of forms and uses of such bodies is matched only by the variations in the results produced. Most of the difficulties that have been experienced in connection with advisory bodies seem to be traceable to a failure to determine in advance just what the board or committee is supposed to do. Some officials seem to think that committees are just decoration and not part of the machinery of administration. Consequently, they have expected members of these bodies to accept their appointments with gratitude and then gracefully retire to the background until they are called upon to endorse the policies of the administration.

"There are in every community a few 'title collectors' who are content with this form of participation, but most self-respecting citizens resent being patronized in this manner. Their resentment usually takes one of two general forms: either they become disillusioned and disgusted, or they take the initiative in finding something to do. In either case the result is usually bad. An offended or disillusioned citi-



From the 1940 Annual Report of Concord, N. H. The Probation Department feels that last year's more than 50 per cent decrease in new offenders is largely due to closer cooperation between the city and other private and public bodies

GAR WOOD SERVES the Nation's Municipalities

Gar Wood truck and trailer equipment—including Dump Bodies and Hoists (both hydraulic and mechanical), Garbage and Rubbish Units, Winches and Cranes, Tanks, Flushers, Sprinklers, and also road machinery including Trailbuilders, Bulldozers, Tamping Rollers, Rippers and Scrapers—is universally recognized as the most dependable, efficient and economical for municipal requirements and for more productive hours.

The name Gar Wood is assurance of unexcelled performance, according to the nation's present municipal users of Gar Wood products. Drawing from a long-time experience covering more than a quarter of a century, Gar Wood engineers are at your service to assist in planning your needs.

Ask for Load-Packer **Bulletin 27,** also **Bulletin 12** featuring a variety of collection units.

The Modern
GAR WOOD
LOAD-PACKER

The all-enclosed Gar Wood Load-Packer is the newest, fastest, most sanitary and economical unit for collecting and hauling garbage and rubbish—compresses all types of garbage and rubbish, allowing for a greater and more compact load.

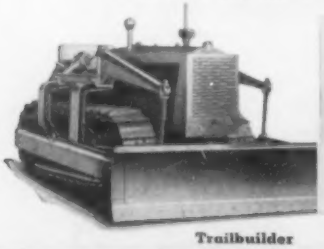
SEE THE GAR WOOD EXHIBIT
at the
AMERICAN PUBLIC WORKS CONVENTION
New Orleans, Louisiana, October 26th to 29th
BOOTHS 7 and 8
See the Gar Wood Load-Packer demonstration in parking lot adjacent to Hotel Roosevelt.

GAR WOOD HEADQUARTERS AT THE HOTEL ROOSEVELT
A cordial invitation to visit Gar Wood Headquarters is extended to all attending the Convention.

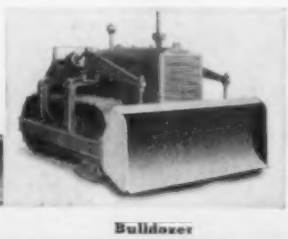
This combination unit is widely used by municipalities. Consists of a Gar Wood Winch and Crane, Hoist and Dump Body—all mounted on one truck. Used for handling hydrants, lighting poles, pipes, steel rails, timber, boulders, sand, gravel and for general hauling.
Ask for **Bulletins W147, W141A and 25.**

The streamlined Gar Wood 3-nozzle Street Flusher (2 sprinkler nozzles at rear.) Clean streets are one of the most important requirements for protecting civic health. Ask for **Bulletin FL-601,** also general **Bulletin 602T.**

Gar Wood offers the most complete line of road machinery including Trailbuilders and Bulldozers (shown below). The Trailbuilder blade raises and lowers and can be set for right- or left-side casting—speeds up trench work. The Bulldozer provides power up and down on blade with quick control to regulate cut—used extensively around rubbish dumps, incinerators and for street and construction work.
Ask for Road Machinery literature

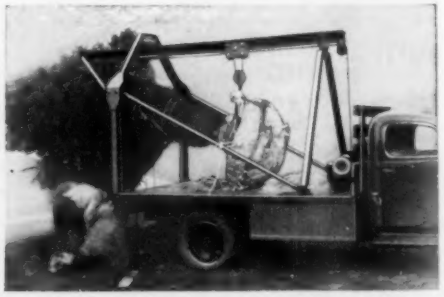


Trailbuilder



Bulldozer

Repair Tower. For tree care, street light and power line maintenance.



The Gar Wood "Q-D" Quick-Detachable Tree-Moving Crane Unit quickly picks up, transports and resets tree balls up to 6 feet in diameter and 3 tons in weight. Can be mounted or demounted in ten minutes. Ask for **Bulletin W148A.**

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WORLD'S LARGEST MANUFACTURER OF TRUCK AND TRAILER EQUIPMENT • BRANCHES AND DISTRIBUTORS EVERYWHERE
Hoists and Bodies • Truck Tanks for Fuel Oil, Gasoline, Milk and other Liquids • Winches and Cranes
Roadbuilders • Bulldozers • Scrapers • Tamping Rollers • Rippers

Left—The "Singing Cop" of Flint, Mich., leads children's singing as part of the Traffic Division's safety program. Right—An illustration taken from "New England Town Meeting," by John Gould (Stephen Daye Press, Inc., Brattleboro, Vt.), showing citizens at a town meeting. Modern cities—where "City Hall is a long way off"—must create the type of interest that comes from such gatherings, where citizens run their government directly and interest is high

zen may never again be willing to take an active role in civic affairs, and the lay member of an advisory board who tries to find something to do is likely to throw a monkey-wrench into the administrative machinery. It is therefore in the interest of public relations and administrative efficiency to have a fairly clear-cut job in mind before advisory bodies are established, to make it clear to appointees what they are expected to do, and then see that they have an opportunity to do it."

Special Committees for Specific Municipal Objectives

The second device "for bridging the gulf between citizens and city officials is the special committee whose purpose is to enlist the active support and cooperation of groups and individuals in the accomplishment of some specific municipal objective. During Fire Prevention Week, representatives of civic clubs, the chamber of commerce, public and private schools, insurance companies, youth organizations, and other civic groups may be fitted into an overall program under the guidance of fire department officials. A traffic safety campaign may embrace all of these groups as well as motor clubs, automobile dealers, and other special-interest groups. Regardless of the form or composition of such special committees, their principal objective is to accomplish some particular civic objective through the joint efforts of private and public agencies. Here again there is need for careful planning so that every participant has something real to do; otherwise it is merely a joint declaration of good intentions."

Mr. Wollpert suggests other ways in which adult citizens can be brought into more active cooperation with City Hall. Many private persons have special knowledge and competence in such fields as civil service examining, public welfare, juvenile delinquency, and public health activities. "Why not," he asks, "draw in as volunteers more of these citizens to aid city officials in the planning and managing of these activities?" Often their special competence will supplement that of the city's own personnel. More important, however, their "imagination and initiative" will leaven both the administration and the community. Fresh points of view inside a city department can always be helpful to any—responsible or responsive—official. These aids will, moreover, reach out in their neighborhoods to make many more citizens aware of —and sympathetic with—what City Hall is trying to do in these fields. Without being politicians themselves, they can do much to interpret public policy and to mobilize further support for its continuing efficiency and improvement.

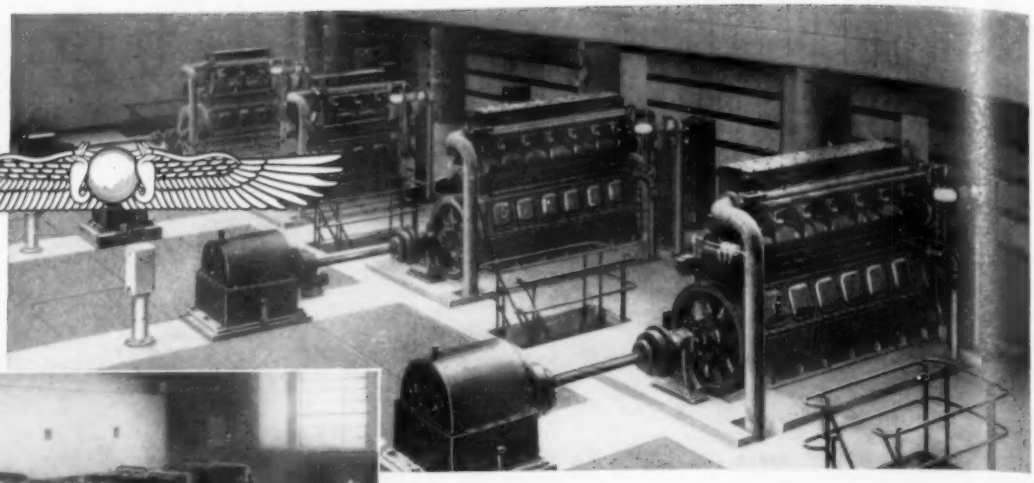
Mr. Wollpert would not stop with adults. He would draw in the youngsters in the schools as well. "Finding useful tasks for children to do pays double dividends: not only are the children themselves brought to a better understanding and appreciation of city affairs, but their parents also find a new interest in local government. The use of schoolboy patrols to protect pedestrian crosswalks is by now a common practice. School children are often the hardest workers in city-wide clean-up campaigns. In several cities, organizations of junior fire-fighters have proved to be enthusiastic and effective in spreading the gospel of fire prevention. In Cincinnati, the Boy Scouts have been used to distribute copies of the annual municipal report, and in Pittsburgh, Boy Scouts recently assisted municipal officials in making a traffic survey."

Taking City Hall to the Citizen

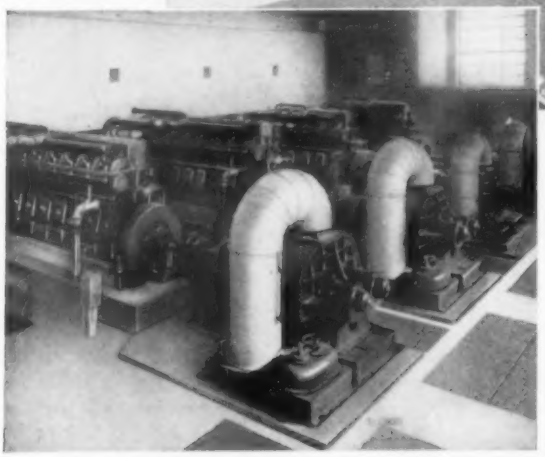
Bringing the citizens to City Hall is only half the story. It is just as important, Mr. Wollpert thinks, to bring City Hall to the citizen—to take city officials out of their offices and into the community. This can be done through both official and unofficial channels. In many cities, various groups of city officials are already doing much in this direction. Most fire departments, for instance, today join in welfare activities, especially at Christmas time with private charities, service clubs and newspapers. They help to collect and distribute food, clothing and toys to the needy. In this way not only is a direct community service performed by the firemen but in performing it they are drawn into closer relations with their fellow citizens.

Police forces, school teachers, and many individual city officials, can contribute both to organized and to spontaneous community interests. The New York City Police Athletic League is one of the most important agencies for improving juvenile morale in the whole city. Many other instances of organized as well as spontaneous civic service by city officials, outside their immediate duties, can be found. "In one Mid-Western city the City Manager and his wife played a prominent part in the establishment of the local 'little theater' in which citizens of all

(Concluded on page 101)



At Tallman's Island



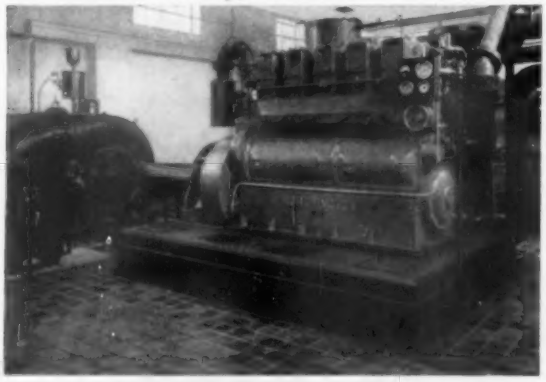
Representative of many outstanding Worthington installations are those at **TALLMAN'S ISLAND** *New York and at* **GARY, INDIANA.**

At **TALLMAN'S ISLAND,** *are two 360 hp. and two 180 hp. Worthington engines, operating on sludge gas, driving Worthington vertical centrifugal sewage pumps through Falk right angle gears. Also, at Tallman's Island, are two 845 hp. and two 460 hp. Worthington engines, operating on sludge gas, direct connected to Roots-Connersville air blowers for aeration service.*

At **GARY, INDIANA** *are three Worthington 24 inch centrifugal pumps, each of 20 MGD capacity, 35 feet TDH, driven by Worthington 175 hp. engines operating on sewage sludge gas. Also, two Worthington 20 inch centrifugal pumps of 15 MGD capacity, driven by 125 hp. Ideal synchronous motors. An installed capacity of 90 MGD, for handling raw sewage.*

WORTHINGTON EQUIPMENT for SEWAGE DISPOSAL

Two views at Gary, Indiana



. . . is contributing prominently to the solution of sewage plant problems.

Developments in the use of sewage gas engines find Worthington in a noteworthy position as evidenced by an extensive and constantly increasing list of successful installations.

And Worthington's service to the sewage disposal field includes not only sewage gas engines. Main raw sewage pumping units as well as pumping equipment for all auxiliary services will be found in a large percentage of our modern sewage disposal plants, including many of the most prominent installations.

WORTHINGTON PUMP AND MACHINERY CORPORATION
GE1-1 *General Offices:* **HARRISON, NEW JERSEY**

WORTHINGTON

A Daily Check on Municipal Finances

By C. A. Harrell
City Manager,
Schenectady, N. Y.

MUNICIPAL administrators have found that the lack of accurate, up-to-date financial information is one of their greatest handicaps when they are faced with problems of financing municipal activities and of controlling expenditures. These problems arise without warning at uncertain intervals throughout the month and year, so that in order to arrive at the best solutions it is necessary to have available the appropriate financial facts. Some of these facts are given on the daily report itself, as I will show later, but because this report has been prepared and because all financial transactions have been recorded and carried through to their final conclusion, it is also true that any and all sub-accounts are up to date, so that any detailed financial information is available at a moment's notice. This daily financial report is of course prepared after all accounts have been posted.

It is a great satisfaction to an administrator to know that at all times the finance accounting is up to date and that the financial information he receives is accurate. Decisions can be no better than the facts upon which they are based, and if the financial facts used are approximations and even guesswork, the resulting decisions may be faulty in their most important aspect—finance.

What Our Report Shows

The information on the financial report itself is very extensive. There is the general fund trial balance, divided to show the general surplus and current budget surplus in addition to the usual balance-sheet items. These balance-sheet items tie-in directly with the departmental expenditure and general fund revenue statements, and control these accounts in totals. Departmental budget accounts show (1) the appropriation and allotment status for each department and continuing appropriation, with (2) the expenditures to date, (3) the bills outstanding, (4) the allotment balance, and (5) the appropriation balance. The revenue table shows all the sources of current revenue as against the budget estimates of these revenues, broken down into 19 classifications. The cash position of each fund is given with the previous balance, day's receipts, day's expenditures, and new balance. The bond statement is up to date and changes only when bonds are issued or redeemed. The special assessment and water accounts show the day-to-day changes from collections or expenditures.

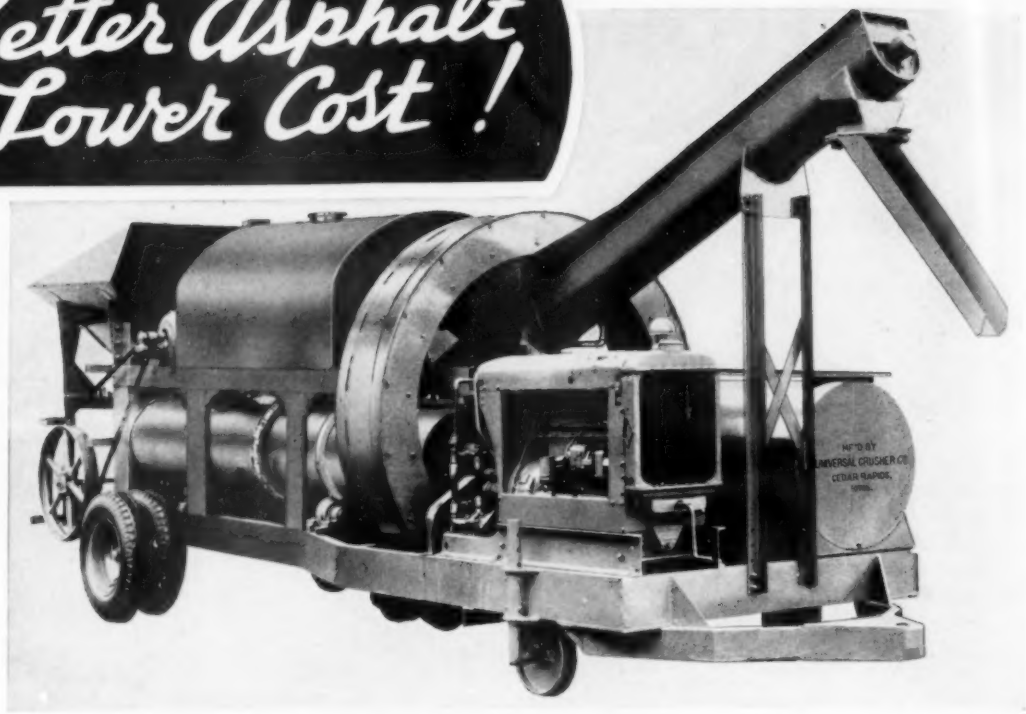
"The preparation of the appropriation and allotment status by department and the revenue status by sources of revenue is a bookkeeping machine procedure taking 15 or 20 minutes a day."
Above is the Sundstrand accounting machine used at Schenectady.

The report shows at any time the exact expenditures of any and every department, the exact amount of the bills outstanding for every department, the exact collections to date against any estimated revenue, the cash in every fund, and the cash in the bank. In themselves these figures are an important guide in administering the Finance Department and the city as a whole; but, in addition, the report shows, by comparison with items in the balance sheet, whether or not it is correct. *Administratively, it is often more important to know that all accounting procedures have been completed to date and are correct than to have the report figures themselves.*

An Easy Machine Job

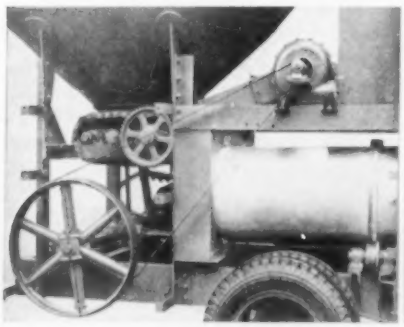
The comprehensiveness of the report may give the impression that its preparation entails considerable work. This is not so, because the report is an integral part of the accounting system; it is indeed the end result of each day's operations. The preparation of the appropriation and allotment status by department and the revenue status by sources of revenue is a bookkeeping-machine procedure taking fifteen or twenty minutes a day. It consists of copying the last entry on departmental total and revenue classification total cards, called "major controls." The machine adds

Better Asphalt at Lower Cost!

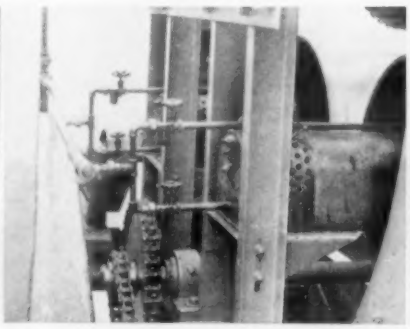


THAT'S no idle boast—it's a fact. Users report asphalt mixes of superior quality at a surprisingly low cost per yard from their Universal "Twin Dryer" Portable Asphalt Plants. Does everything that a regular stationary asphalt plant does, but with drying and mixing processes greatly simplified.

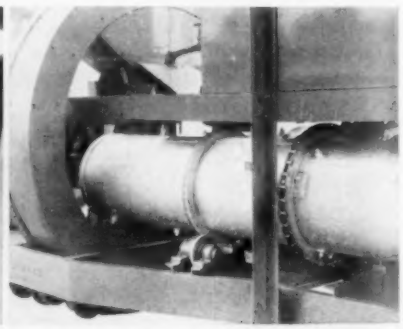
The "Twin Dryer" produces up to 42 tons per hour of asphaltic concrete, wearing course mixes or hot patch material. It's a "priority" machine for fast, low cost paving of airport runways and a cost-cutter for municipal street maintenance. Send for the full facts!



1 Two 13'6" oil fired rotary driers, one for sand and one for aggregates.



2 Oil and water don't mix—thorough heating drives off moisture, leaving sand and aggregates thirsty to absorb bituminous material.



3 Rotavator starts mixing of sand and aggregates as it elevates them to the screw pug mill where hot asphalt is introduced. Pug mill finishes mixing.

UNIVERSAL CRUSHER COMPANY, 642 C Ave. West, Cedar Rapids, Iowa

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During October we hope you will remember to mention THE AMERICAN CITY.

up these entries, and ends with the figures that must correspond to the figures taken from the general ledger in preparing the balance sheet. This is the control. The balance sheet also takes about ten or fifteen minutes and consists of copying the last general ledger item of each account.

To produce a daily financial report, the general ledger must be kept up to date—one of the advantages of the whole system. It is no more difficult to make the ledger entries daily than to keep memoranda accounts and make summary entries monthly and it gives much more satisfaction.

Last fall Schenectady experimented in giving information to the taxpayers about financial affairs. For several years, folders detailing the breakdown of the tax dollar have been given out with tax receipts and made generally available. But for all this, there did not seem to be any very clear understanding on the part of the taxpayers as to where their dollar was going. To remedy this, this year we sent out two tax bills: one including all city, state, and county taxes, except welfare; the other covering the taxes for welfare. These are two separate bills and both have to be paid.

Every taxpayer in Schenectady now knows how much welfare is costing him. We were surprised to learn that many persons had never realized before that they were paying anything for welfare.

° ° ° —

WPA's Record and Plans

How $875,000,000 Is Being Spent This Fiscal Year

By HOWARD O. HUNTER
Commissioner,
Work Projects Administration

DURING the last six years cities and communities in nearly every county in the United States have made improvements to their public facilities with the aid of the Work Projects Administration. Few types of work have been omitted from the wide variety that progressive communities have operated under this program, which was created by Congress for the major purpose of providing employment on useful public projects.

The summary of WPA work from July, 1935, through 1940 is a record of physical contribution to community wealth in nearly every field of public endeavor. The accomplishments include city streets, farm-to-market roads, utilities, schools, hospitals, armories and barracks, airports and recreational, conservation and sanitation facilities. More than 100,000 public buildings and 565,000 miles of roads have been built or improved during this period.

As the largest single agent in airport construction, WPA has worked at some 800 sites in the last 5½ years and is rapidly expanding that number under an accelerated defense airport construction program. The airports that WPA has built or is now building fulfill at the present time particular defense needs; but the past and future importance of this airport construction program to progressive cities, aside from the defense value, is also great.

The providing of work for those employable people who would otherwise be dependent upon some sort of a dole has been a primary consideration of this department of the Federal Works Agency. Since July, 1935, approximately 8,500,000 different individuals have been employed at one time or another by the WPA. It is this group of men and women who, while being paid a subsistence wage, have helped to provide their communities with improvements that in most cases would otherwise have been impossible.

Defense Work Gets Preference

During the last fiscal year an increasing proportion of WPA work has been devoted to strictly defense projects. In a majority of cases this work has brought definite civilian benefits to cities and communities located in defense areas.

In order to continue to provide work for employable needy persons for the fiscal year ending June 30, 1942, the Congress appropriated to the WPA $875,000,000. Aside from the smaller appropriation, the provisions of the Act (Public Law 143—77th Congress) are practically the same as that for the year just completed.

Defense work continues to be given preference in all cases where military authorities consider the projects to be of military or naval importance. However, work on municipal improvements continues when it does not conflict with defense needs, and where otherwise unemployed labor is available.

Under the current Act, WPA will be able to employ an estimated average of 1,000,000 persons as compared with an average of 1,700,000 during the 1940-1941 fiscal year.

Apportioning the Funds

Because of the similarity between the 1941 Act and the 1942 Act, WPA funds during the fiscal year 1942 will probably be distributed among the various classes of expenditure in about the same proportion as during the preceding fiscal year.

For the 1940-1941 fiscal year the WPA expenditure was $1,326,111,000 as authorized by the Congress and the President. Sponsors of projects added $547,867,000 to this sum. Of the WPA funds, 87.0 per cent was paid as wages to WPA workers, 9.4 per cent was spent for non-labor costs, such as materials and equipment, and 3.6 per cent for administration. Of the sponsors' funds, 16.7 per cent was paid in wages, 43.7 per cent bought materials, supplies, and equipment, and 39.6 per cent was expended for rental of equipment and other non-labor items.

The pennies in each dollar of combined WPA and sponsors' funds were expended by major types of WPA-operated projects as follows: highways, roads and streets, 38.6; community service, 24.3; public utilities, 10.9; public buildings, 10.6; recreational facilities, 4.8; airports and airways, 3.9; conservation, 2.5; national defense vocational training, 1.7; sanitation, 1.2; and miscellaneous, 1.5.

Basic wages ranged from $31.20 to $94.90 for 130 hours of labor per month, depending upon skill and the locality where the work was accomplished. On certain defense projects, such as airports, and work done for the Army, the Navy, and other defense agencies, hours of work have been increased up to 208 per month with proportionate increases in earnings. The average wage of all workers on defense and non-defense projects was about $60 per month.

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Left: International TD-14 Diesel equipped with a 9-foot snow plow with 9-foot wings. Owner covers a 90-mile stretch of roads and streets with this unit.

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INTERNATIONAL Industrial Power

Problems of Water Supply and Sewage Disposal in the Selection of Housing Sites

A Report of the Subcommittee on Home Sanitation, Committee on the Hygiene of Housing, of the American Public Health Association

IN THE selection of property for residential use, careful consideration should be given to all sanitary problems that may be associated with the area and its development. Too frequently, irrespective of whether the property is in urban, suburban or rural districts, little or no consideration is given to such major problems as the water supply and the disposal of sewage and domestic wastes. As a result, health departments are constantly being asked for assistance in cases where, because of improper selection or development of sites, serious health hazards have arisen that are difficult if not practically impossible to correct. To avoid the occurrence of such health hazards, careful land-planning studies should be made of the following:

1. Areas which are subject to flooding.
2. Areas which have an exceptionally high ground-water table.
3. Areas where the topography is such that proper drainage cannot be obtained.
4. Areas that have been platted without sufficient information on soil conditions to determine whether an adequate and safe water supply and a proper means of sewage disposal can be secured.
5. Areas where soil conditions make individual sanitary installations impossible, and some type of community system must be constructed to provide adequate sanitary facilities.

The problem of preventing such errors may be divided into two parts, one of which would deal with the land-planning aspects as associated with the selection and development of residential property, and the other with the preparation and application of sanitary standards.

Land Planning

Too little emphasis has been placed on land planning; it should be the essential part of any program and preventive approach directed toward the satisfactory development of residential property. The official health agency should be expected to assume the principal responsibility on public health problems, but there should be a much closer coordination of both the state and local health departments with land-planning agencies. In many instances, those interested in residential development still fail to realize the importance of proper provisions for safe private water supplies and efficient disposal of all sewage and domestic wastes, and the care that is required in the maintenance of such facilities. The failure to give proper consideration to such facilities often results in the creation of unsatisfactory situations which are not discovered until the building is completed and which are costly to correct, if not sometimes impossible.

The Federal Government, acting through its agencies that are interested in housing, has stressed the need for attention to subdivision planning by state and local governmental units. Every advantage should be taken of state legislation, and wherever possible this should be supported by local legislation on the subject of land planning and subdivision development, to further adequate protection against health hazards. For example, the state of New York, as a result of the activities of the Division of Planning, procured in 1938 an amendment to assure the enforcement of a health law adopted in 1933. This amendment (Chapter 260 of the Laws of 1938) provides that no county clerk or registrar shall file or record, or accept for filing or recording, any map or plat showing a subdivision of land in any town unless there is endorsed thereon, or annexed thereto, a certificate of the State Commissioner of Health approving the water supply and sewerage systems proposed or installed for such subdivision, and consenting to the filing thereof. The original act, passed in 1933, gave the State Commissioner of Health power to pass upon the plans and, in his discretion, to require the installation of facilities for water and sewerage services, but was not self-enforcing in towns throughout the state. Such laws as the above-mentioned amended one are necessary to protect the public in the purchase of individual properties in subdivision developments by assuring that proper sanitary facilities will be provided.

The state of Wisconsin, in drafting its "Lake and Stream Store Planning and Sanitation Code," included a provision which requires a certified copy of complete plans of any proposed subdivision in such areas to be submitted to the State Board of Health, including the proposed water-supply and sewage-disposal systems. These plans must be approved by the State Board of Health.

The state of Maryland also has a planning law which requires the submission of plans of all platted subdivision property to the State Department of Health. There is, however, in Maryland, as may be the case in many other states, a need for a law similar to that enacted in New York State to provide enforcement of this provision. Under the present act, many subdivisions escape the necessary review and inspection by state health authorities.

Sanitary Standards

The Committee has already out-

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lined certain principles relating to water supply and the disposal of human excreta and domestic wastes in its "Basic Principles of Healthful Housing," and the former Subcommittee on Interior Home Sanitation outlined suggested standards for water supply and sewage disposal for the isolated dwelling. The Suggested Sanitation Code of the United States Public Health Service (December, 1940) should also serve as a guide in the formulation of standards for water supplies and sewage disposal for residential housing. The United States Department of Agriculture, through its Soil Conservation Service, issued, in 1940, two bulletins that contain much valuable information, well illustrated, on small water-supply and sewage-disposal installations. These are entitled, "Sanitary Standards for Rural Water Supplies and Systems," and "Sanitary Standards for Disposal of Sewage and Domestic Wastes in Rural Areas."

In making a study of sanitary problems outside the dwelling, it is necessary that consideration also be given the relationship of the water-supply and the sewage-disposal facilities to the area and the shape of the lot that is to be selected for residential use. Restricted lot areas in subdivision developments where public facilities are not provided have already presented outstanding problems of sanitation. In the preparation of standards, there are three requisites of primary importance:

1. A safe and adequate supply of water for drinking and domestic use.

2. Proper and efficient disposal of all human excreta and domestic wastes.

3. The construction and maintenance of the property in a condition that will prevent the establishment of any breeding places for insects or rodents which may create a menace to health.

Water and Sewage

In attacking the problems of water supply and sewage disposal, consideration should be given the following situations:

1. *Where a public water supply and a public sewerage system are available:*

(a) The water-supply system should be available to each lot. It should provide an ample quantity of water at adequate pressure for all domestic purposes, and should meet the sanitary requirements of the health authorities that have jurisdiction.

(b) The sewerage system should be available to each lot, should be so designed and constructed that it will collect and carry the domestic sewage from each lot without flooding, and should meet the requirements of the health authorities that have jurisdiction.

(c) The service connections for both water and sewage from the street to the residence should meet the requirements of the health authorities that have jurisdiction.

2. *Where only a public water supply is available, and an individual sewage-disposal system must be provided on each lot:*

(a) The water supply should conform with the requirements given under 1 (a) and 1 (c).

(b) The sewerage system should meet the requirements of the health authorities that have jurisdiction. The health authorities, in formulating local requirements, might well take advantage of the suggested Sanitation Code prepared by the United States Public Health Service.

(c) The water service and sewer connections should conform with 1 (c).

(d) The point of sewage discharge on each lot and the minimum lot dimensions should be approved by the health authority having jurisdiction in relation to soil conditions, topography, drainage, sewage volume, etc., in such manner as will provide adequate absorption and will avoid the creation of a nuisance.

3. *Where only a public sewerage system is available and an individual water supply must be provided on each lot:*

(a) The water supply should meet the requirements specified in 1 (a). The health authorities, in formulating local requirements, might well take advantage of the Suggested Sanitation Code prepared by the United States Public Health Service.

(b) The sewerage system should meet the requirements specified under 1 (b).

4. *Where both an individual water supply and an individual sewage-disposal system must be provided on each lot:*

(a) The water supply should meet the requirements specified in 1 (a). The health authorities, in formulating local requirements, might well take advantage of the Suggested Sanitation Code prepared by the United States Public Health Service.

(b) The sewerage system should conform with the requirements of the health authorities that have jurisdiction. And again, the health authorities, in formulating local requirements, would do well to take advantage of the afore-mentioned code.

(c) The point of sewage discharge on each lot and the minimum lot dimensions should be approved by the health authority having jurisdiction in relation to soil conditions, drainage, sewage volume, etc., in such manner as will provide adequate absorption, will prevent pollution of any water supply, and will avoid creating a nuisance.

A public water supply and sewerage system that is properly designed and operated affords the safest and most satisfactory solution of these problems from a public health point of view. In the absence of a public water supply and a public sewerage system, community water and sewerage systems for subdivision development tend to be safer than individual installations, provided adequate maintenance is assured. Individual water-supply and sewage-disposal systems are frequently installed in subdivision developments and congested areas as a temporary expedient until public facilities can be constructed. Experience has shown that such installations often fail to function satisfactorily even with favorable soil conditions and every effort should be made to provide public or community systems.

—Report presented by FREDERICK J. ADAMS, JOEL I. CONNOLLY, LESLIE C. FRANK, HOWARD P. VERMILYA, and H. A. WHITTAKER, Chairman.

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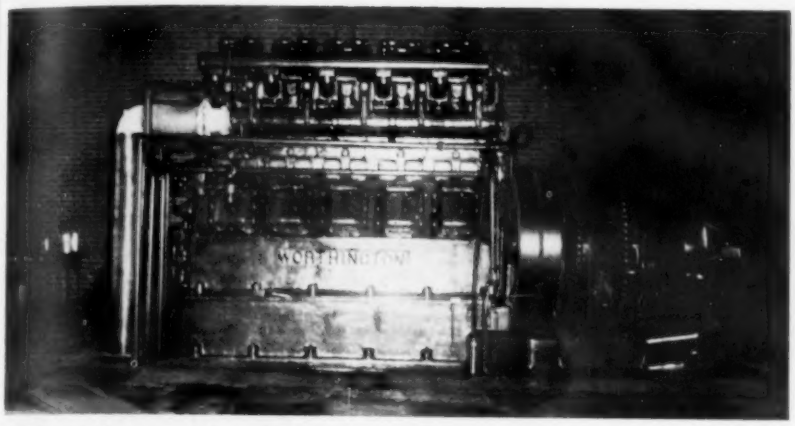
Sewage-Gas Engines Serving Cedar Rapids, Iowa

One Drives Generator for Plant Electric Needs and Surplus to Local Utility: Other a Standby on Pump



This unit has averaged 1,126,396 kwh per year since 1935, when the Worthington 5-cylinder engine started operation with sewage gas as fuel, driving a 150-kw General Electric generator at the Cedar Rapids sewage-treatment plant

WITH a 5-year average production of sewage sludge digester gas of 165,000 cubic feet per day, the city of Cedar Rapids is well-equipped to use it for power purposes. The gas analyzes better than 600 Btu per cubic foot, making it a truly acceptable fuel.

First Sludge-Gas Engine

In 1935 the first gas-engine installation was made at Cedar Rapids, consisting of a Worthington 5-cylinder gas engine direct-connected to a 150-kw General Electric gengrator. This provides sufficient electricity to handle all operating loads at the sewage-treatment plant, but not the starting loads. The annual production of this power unit since its installation has amounted to an average of 1,126,396 kwh per year; of this, approximately 655,175 kwh are required for plant operation and the rest is delivered to the lines of the local utility and credited to the city. At times of peak pumping, the power requirements are greater than can be taken care of at the plant, so power is taken from the utility. This amounts to approximately 10,900 kwh a year.

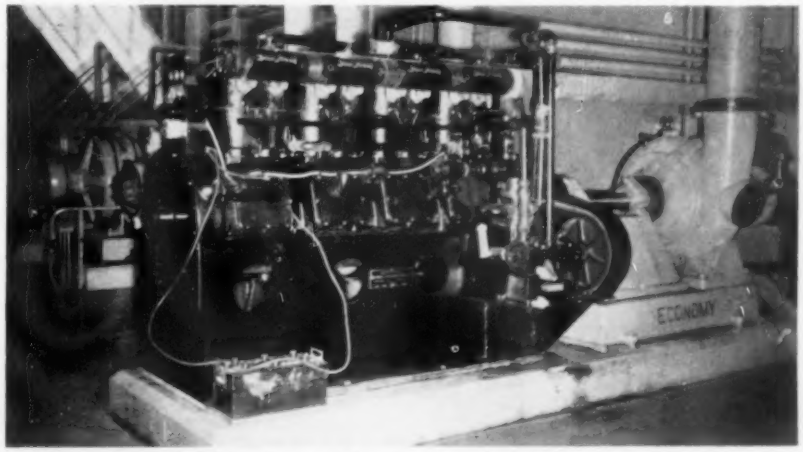
Pumping at the Plant

The total pumping capacity installed at the sewage-treatment plant, to which all sewage flows by gravity, amounts to 43,600 gallons per minute, divided as follows: two 8,800-gpm centrifugal pumps, one 5,000-gpm pump, one 11,000-gpm pump, and one 10,000-gpm pump. These pumps raise the sewage as received in the wet well to the elevation of the plant for treatment. They also act as a flood-control system throughout the city, for city sewers flood during the spring high water of the Cedar River, and would flood basements if the pressure were not relieved by high capacity pumping of this effective installation at the sewage-treatment plant. The pumps take the sewage from the wet well, reducing the pressure on the sewer system, and deliver the diluted sewage direct to the river without treatment. In 1933, which was the last big flood on the Cedar River, the flood water came within 2 feet of the grade line of the ground floor of the treatment plant.

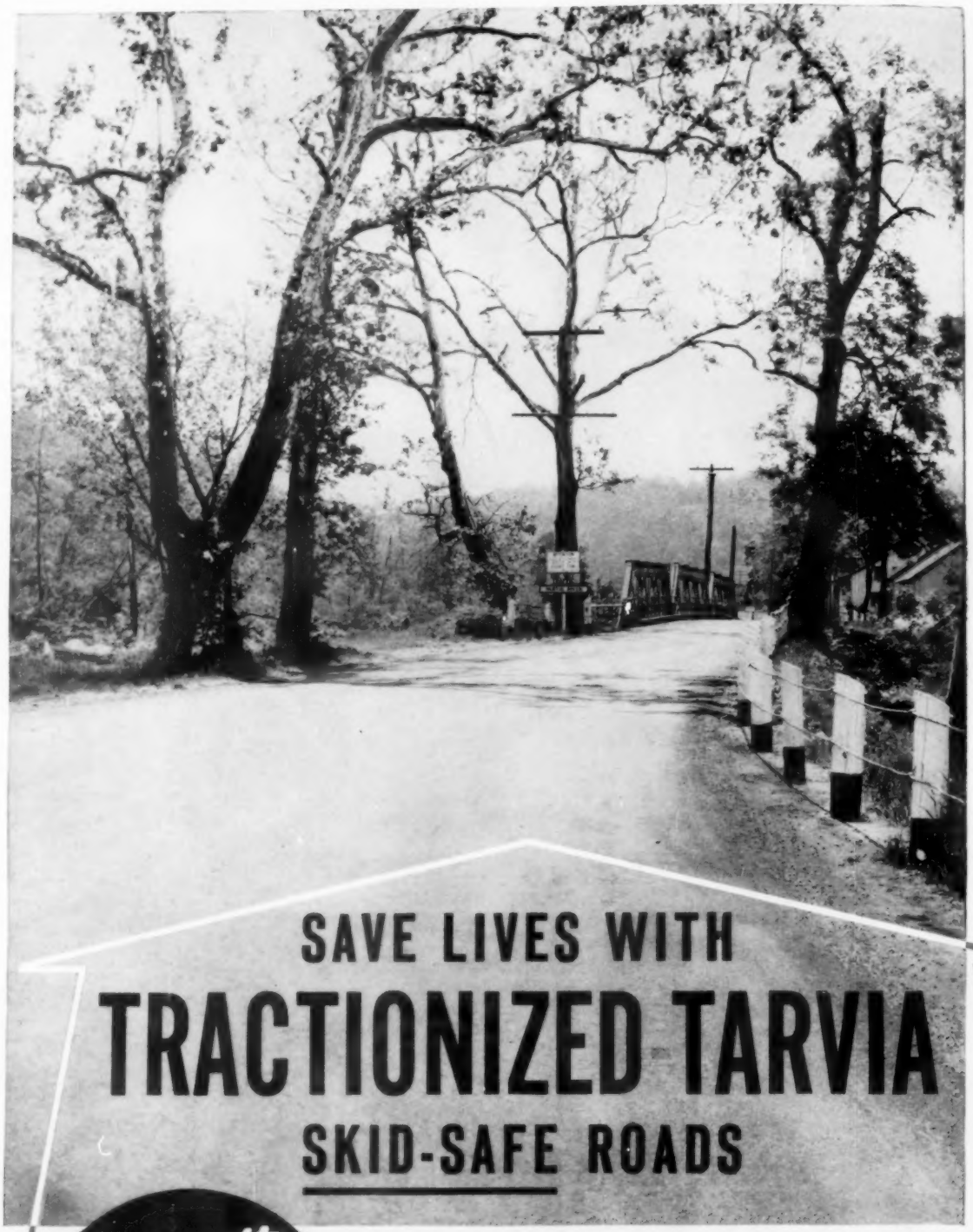
New Standby Engine

In the summer of 1939 another internal-combustion engine was installed at the plant, capable of being operated either by sewage sludge-digester gas or by gasoline.

(Concluded on page 83)



The Climax 100-hp Gas Engine for Either Gasoline or Sludge-Gas Fuel, Direct Connected to an Economy 11,000-gpm Pump, Operating at 720 rpm at the Cedar Rapids, Iowa, Sewage-Treatment Plant



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The Relation of Mixer Design to Good Asphalt Mixes

A Study of Recent Changes in Plant Design and Their Effects on the Quality of Fine Mixes

By R. J. Stoner
Chemist, Department of Borough Works Laboratory,
Office of the Borough President of Manhattan,
New York City

THE tendency in modern asphalt plant practice is to increase the size of the mixer. From the 600- to 800-pound capacity of the old portable plant days we advanced to the 1,500-pound and finally to the 1-ton, the standard mixer of today. For years the 1-ton mixer was considered the best design and gave satisfactory service as to quality of mixed product and the time factor. But now with the advance in plant technique asphalt plant manufacturers are no longer satisfied with the 1-ton mixer. Plants are being built and old plants re-equipped with 2-ton, 3-ton and 4-ton mixers. Plant manufacturers are all for the bigger mixers and will urge the installation of as large a one as it is practical to have. Let us consider the reasons for this increase in mixer capacity, and study the pros and cons as to its desirability.

The advantages claimed for the use of larger mixing boxes may be enumerated as follows:

1. Number of mixing operations for the same output is reduced in proportion to the increase in mixer box.

2. Over-weight errors (the so-called human equation) are reduced in terms of per cent of total mix.

3. Time of mixing is cut down.

4. Waiting time of trucks is lessened.

A Gain—and Loss

Apparently, the main advantage claimed is that of time saved resulting from the use of a larger mixer. Who, having been around asphalt plants, has not seen the long queue of trucks lined up in the early morning, waiting for their loads. This condition occurs again after the lunch hour and very often during the day, particularly if there has been a temporary shut-down for a minor repair to the plant. The truck-hours lost every day add up to a considerable sum during the year. The plant superintendent reasons thus: If it takes 10 to 12 minutes to load a truck with an 1-ton mixer, it should take only 5 to 6 minutes to load it with a 2-ton mixer, and presumably about 3 minutes to load it with a 4-ton mixer. Hence, if in the morning the sixth truck in line waits one hour for its load with a 1-ton mixer, it would have to wait only ½-hour with a 2-ton mixer, and only 15 minutes with a 4-ton mixer. With such savings in mind, it is only reasonable for the superintendent to hasten the change from his small mixer to as large a one as is feasible.

However, there may be a catch to the foregoing reasoning which is not always apparent to the plant man or the plant fabricator. The catch is that this hurried use of the larger mixer too often results in the production of an inferior mix. In other words, the saving of time is more than offset by the poorer quality of mix produced. If a 2-ton batch is mixed one minute (dry and wet mix combined) we have a much poorer mix than a good 1-ton mixer will produce in the same time. This statement, of course, is predicated on the type of 2-ton mixer as presently designed. So, in order to make a comparable product, we are forced to mix the 2-ton batch 1½ or even 2 minutes. What time is saved then?

A "Good" Mix

The question often arises as to what a "good" mix is. This is harder to define than to know. An experienced asphalt man can spot it invariably. Of course the mix must be uniform or homogeneous. It should not show "fat" spots or dry areas. But a good mix must be more than that. The good mix is fluffy—it has life. It rakes easily and compresses perfectly without honeycombing or cracking. It makes for perfect workmanship with minimum effort. It is almost fool-proof in its workability. Yes—both the street-man and the plant-man can recognize a good mix when they see it, but how many asphalt men—even the most experienced—understand the factors essential for a good mix?

It should be no mystery, this producing of a good mix. Of course, the right formula is necessary. The proper proportions of sand, filler, and asphaltic cement must be used. The right gradings of the sand and filler, and the proper penetration of the asphaltic cement must be determined beforehand. The maximum and minimum temperature limits of both raw materials and finished product must be set and adhered to. If necessary (and with strange material it is essential) stability tests on the finished wearing surface must be made. The affinity of the various aggregates with the

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bitumen must be studied and compared. All this and more is the province of the plant chemist, whose importance for the production of perfect wearing surfaces is too often underestimated by rule-of-thumb practical plant men.

Yet having ascertained the proper ingredients in the proper proportions at the ideal temperature for mixing, we often find that the final product dropped into the waiting truck is a heavy, soggy, dead mass. And only too often does the telephone of the plant office bring the anguished voice of the street foreman bitterly complaining that the "stuff is honeycombing and cracking, and what the blank-blank are you going to do about it?" And what does the average plant foreman do about it? He hastens to increase the per cent of bitumen—or decrease it, as the thought strikes him. He increases the temperature or he decreases it haphazardly, and he varies this by cussing out everyone connected with the production of the asphaltic mix. Unfortunately this does little to improve the product, and at the end of the day our plant foreman is a very nervous and bitter man.

This is where the other important factors for a good mix come in; that is, the proper mixer, and the proper mixing technique. The mixer is the heart of the asphalt plant. A good mixer may not make a good mix from improperly designed ingredients, but it can with the proper mixing technique make as good a mix as is possible. And, on the other hand, a poorly designed mixer will produce a dead mix with the best material available. Therefore a knowledge of mixers and mixing technique is essential for the production of good asphaltic mixes.

Mixing Technique

What makes good mixing technique? Mixer men have been known to dump the asphaltic cement into the mixer and then add the mineral aggregates. Leakage of the liquid asphaltic cement through the gates of the mixer has caused this practice to be discontinued to a great extent. Others dumped the mineral aggregates and the asphaltic cement at the same time into the mixer. Both methods originate from the desire to eliminate the clouds of dust thrown up by the revolving blades of the mixer striking the dry aggregate. Owing to habit and ignorance of mixer men, the latter practice is still followed by a large number even where the mixer is all enclosed and fitted with dust-control vents. In both types of mixing, a good mix cannot be produced. The pool of asphaltic cement balls up the fine aggregate; and no matter how long the mix is maintained, there is no uniformity in the final product. The mix is heavy, soggy, and dead-looking. It is the type of material that makes the street foreman's life miserable and causes the plant foreman to regret that he resisted that impulse of thirty years ago to run off to sea.

Experience has shown that a good mix (other conditions being ideal) may be had only where the aggregates are first dumped into the mixer and churned until they are thoroughly and uniformly mixed. Only then is the asphaltic cement added (uniformly across the entire length of the mixer) and the whole again mixed until every particle of aggregate is coated and the mix is homogeneous. This first mixing of the dry aggregates is termed the "dry mix." The mixing of the entire mass after adding the asphaltic cement is termed the "wet mix." The length of time for a good dry mix will vary with the type of mixer, and the same is true for a good wet mix. A 15-second dry mix followed by a 45-second wet mix has been successfully used in the hot sheet asphalt mixes with 1-ton mixers.

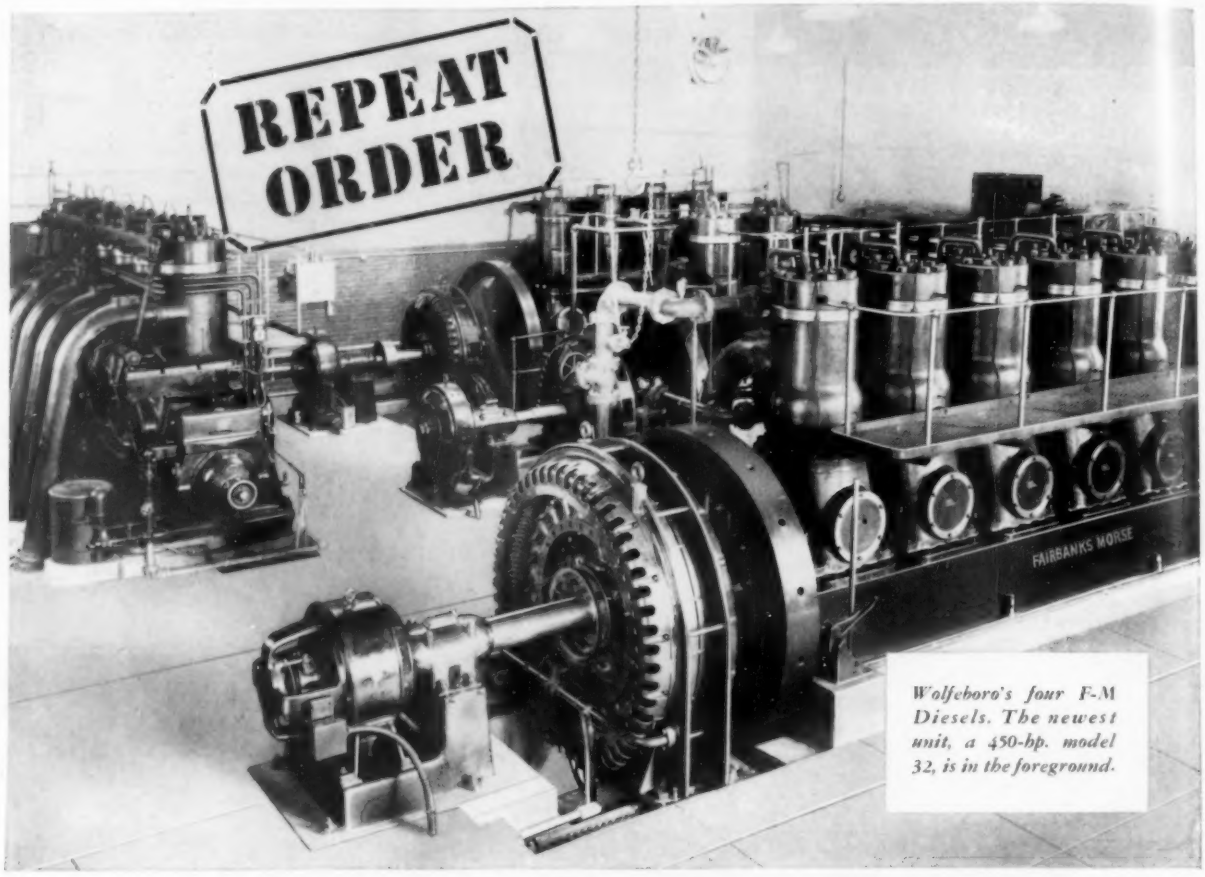
The Mixer

So much for mixing technique. The question now arises, what makes a good asphalt mixer? This, too, seems to be a great mystery to many asphalt men, and apparently to some of our plant designers as well. The design of the 1-ton mixers on the whole is fairly good. Some are better than others, but most under proper conditions can turn out a fairly good mix. These twin-pug-type mixers are similar in that they consist of two parallel revolving main shafts to which blades are attached to cut through and mix the material. The size, shape and setting of the blades vary with the different types of mixers. The general design of the blade setting is to have them attached to the shaft in the form of a worm or screw pattern. Thus half the number of blades on each shaft are set in the pattern of a right-hand screw; the other half in the pattern of a left-hand screw, with the face of the blades in all cases turned to the center of the box. The result of this setting is to worm the material to the center of the box, where it is caught, beaten and mixed. Another type has the blades set in the same worm pattern, but the worm is unbroken on each shaft; advancing from left to right on one shaft (the blades all facing one way) and reversing itself from right to left on the other shaft (the blades all facing the other way). A circulatory motion is thus set up in the mixing material. Still another type has no worm pattern; the blades are attached at intervals on each shaft but all face the center of the box.

The speeds of rotation of the mixing blades are set for each mixer. They may vary from a low of 60 rpm in one type to a high of 90 rpm in another. The shapes of the mixing blades also vary in the various mixers from shafts of an even 6- to 8-inch width with or without removable tips of the same width, to narrow shafts of less than 2-inch width with removable tips of about 6-inch width. The number of blades in each mixer also varies, some having 20 to the shaft, or a total of 40, and others as many as 28 to the shaft, or a total of 56.

Why the Differences?

With such variation in size, set, number and shape of the blades as well as speed of rotation, we should expect differences in the mixed product. We do indeed find these differences. Plant A has a reputation for turning out an excellent sheet asphalt mix. Plant B turns out only a fair mix. Both use the same source of raw material. Both have experienced plant men. And both work under the close supervision of the same plant chemist. Why the difference in results? The answer must lie in the mixer. An-



Wolfeboro's four F-M Diesels. The newest unit, a 450-hp. model 32, is in the foreground.

NOW 4 F-M DIESELS Serve Wolfeboro...

Because the First Were So Economical and Reliable!

Wolfeboro, New Hampshire, installed its first two Fairbanks-Morse Diesels and Generators in 1927, its third in 1928, and its fourth in 1937.

Why *Fairbanks-Morse* Diesels *again?* Because for ten years the first three F-M Diesels performed so economically that they not only permitted frequent rate reductions but also paid for themselves and built up sufficient surplus to pay for the fourth.

There was another reason, too. In 1935 modernization of one of the original engines demonstrated the advantages of *farsighted F-M design*—design that permits bringing early F-M Diesels up to date *for a fraction of replacement cost.* The converted 240-hp. F-M Diesel, to quote from Wolfeboro's 1937 report, "generated 110,000 *more* kilowatt hours (in 1936) using 350 *less* gallons of fuel oil than in the previous year."

Like Wolfeboro, hundreds of municipalities throughout the country have *said with repeat orders* that heavy-duty, slow-speed, two-cycle F-M Diesels are the ones for low-cost power generating. For the complete story of F-M Diesel economies, write Fairbanks, Morse & Co., Dept. J10, 600 S. Michigan Ave., Chicago, Ill. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE F-M DIESELS

MOTORS ELECTRICAL MACHINERY RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

other example comes to hand. Plant C has always turned out a good mix with its 1-ton mixer. It is modernized and, as is customary, it is re-equipped with a 2-ton mixer. The same material continues to be used; the same men operate the plant. Yet now the mix appears heavy and soggy and is definitely not the fluffy and live mixture originally turned out. Why? The answer again is the mixer.

What makes the mixer of Plant A superior to that of Plant B? Mixer A is one of the oldest types used in the asphalt mixing process. It follows no worm pattern in the blade setting. The blades consist of 7½-inch long by 1¾-inch wide shanks with removable tips 6 inches wide by 4 inches long. Mixer B is set in the broken worm pattern and is a late design. The blades taper from 7½-inch widths near the shaft to 5½-inch widths at the top and have practically no shanks separating them from the shaft. The blades in both A and B mixers total 40 to the box. Thus it can be seen that the blades in Mixer B have almost twice the mixing area of the blades in Mixer A, since the 7½-inch shank in the latter, being only 1¾ inches wide, has comparatively little mixing surface. Thus by design and mixing area Mixer B should be superior to Mixer A, yet we find the contrary is true. Apparently there must be another factor that plays a most important part in good mixing principles. This is speed of rotation. Mixer A rotates at 90 rpm. Mixer B has 60 rpm. It is precisely this 50 per cent greater rotating speed that makes A superior to B.

Effect of RPM

That the rotating speed of a mixer has a most decided influence upon the quality of mix produced can be further verified from the following cases. Plant D has the same type mixer as Plant B (in fact, both mixers were made by the same fabricator). But Mixer D is geared to rotate at 80 rpm and its mix is much superior to that of Mixer B. Here again the ingredients come from the same source and the mixers are identical except for speed of rotation. The difference in quality of the mix produced must be due to the increased rpm of the blades. Another example may be cited. Plant E has the same type mixer as that of Plant A but Mixer E rotates at 60 rpm and, as expected, it does not turn out as good a mix as does Mixer A with its 90 rpm.

Why is a high rotating speed so important? Let us observe Mixer B in action. The worm pattern of the blades works the material toward the center. But at the comparatively low rate of 60 rpm there is not very much mixing action. And if the material cools off slightly we can notice the center portion bobbing up and down and only gradually being drawn under the blades. But watch Mixer A! The speeding blades throw the mix toward the center of the box and whirl it under the center blades. There is a cutting and beating action similar to that of an egg-beater and the results are alike—the production of a homogeneous fluffy mass. At that high speed the thin 1¾-inch-wide shanks are a benefit. They cut through the mix rapidly, leaving the beating and mixing action to the wider tips. And what of Mixer D at 80 rpm? The action is similar to that of Mixer A. There is no sluggish movement of the mix as in Mixer B. The long, wide blades beat and throw the mix in a whirling action that produces a live fluffy product. Thus it can be safely stated that the greater the speed of rotation within limits, of a mixer, the better the resulting mix will be.

The Large Mixers

This study of 1-ton mixers gives us the clue as to what the reason is for the comparatively poorer quality of material turned out by the 2-ton and larger mixers. For practical reasons, namely, to reduce to as little as possible the horsepower needed to mix the greater mass, the rotating speeds of the larger mixers have been reduced. In the 2-ton mixers, we find one type set at 55 rpm, another at 45 rpm, a third type at 40 rpm, and even lower in others. To justify this decrease, some makers claim that the feet per minute traveled by the blade tips is the same as for the 1-ton mixers due to the greater radius of circle made by the larger blade tip. That this is a false analogy can be shown by the following somewhat exaggerated example. Imagine a ton of material being mixed by a 1-ton mixer with 12-inch blades rotating at 60 rpm. Now in designing a mixer to mix 100 tons at a time we may specify a 12-foot blade (admittedly exaggerated). Now can we conceive that these 12-foot blades crawling through the 100-ton mixture at 5 rpm will mix this great mass as well, in the same time, as the 12-inch blades mixing 1 ton at 60 rpm? Yet the feet per minute traveled by the tips of both 12-inch and 12-foot blades is the same.

To make matters worse, not only has the rpm been reduced, but the number of mixing blades have been lessened in these larger mixers. Where 1-ton mixers have done excellent work with 56 blades, the designs for 2-ton mixers may call for 40 and even for 32. And, finally, perhaps to compensate for this, the design may call for greatly increasing the width of these blades. At the low rpm the extra-wide blades do nothing more than shove the material around the mixing box.

The Fine Sheet Mixes

One thing must be made clear anent this criticism of larger mixers. They may work well enough on coarse hot mixes such as binders and open mixes of various kinds, and they may do fairly well, too, on certain types of cold mixes. But they cannot with the present design of low rpm with fewer and very wide blades make a good sheet asphalt topping mix, to compare with a good 1-ton mixer. But can 2-ton or larger mixers be made to produce a hot fine mix comparable to that of a good 1-ton mixer? I believe they can, and the changes in design need not be too radical. From what has been stated above, I would enumerate the following essential elements in the design of a superior large mixer:

(1) The rpm must be increased to at least 65 rpm, preferably 75 rpm.

(2) The number of blades for mixing should total at least 48 to the mixer.

(3) The width of the mixing

(Concluded on page 83)

UNDERGROUND LEAKAGE . . .

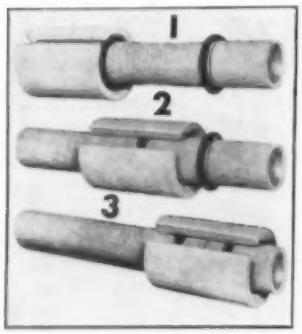
and how it can be minimized with this simple, "packaged" joint

NUMEROUS surveys have shown that leaky joints are responsible for a considerable portion of total water losses from underground mains. Generally recognized by waterworks men as a serious problem, joint leakage not only results in a direct waste of water but, by washing away supporting soil, frequently causes pipe to fracture under traffic and earth loads.

Much of this trouble is caused by the fact that the ordinary rigid joint, even though perfectly made by skilled workmen, may open up when subjected to vibration or settlement after the line is in service.

One Solution . . .

Such potential dangers are minimized with a *flexible* joint. And that is the principle upon which the Simplex Coupling, employed in assembling Transite Pipe, was designed. Consisting of a Transite sleeve and two rubber rings, it forms a tight joint that stays tight in service. Its flexibility compensates for vibration and for vertical, longitudinal and lateral movements to which the pipe may be subjected underground. Depending upon the size of the pipe, a deflection of 5° or more is possible at each joint.



Simplex Coupling Assembly
(1) At start of operation
(2) Sleeve pulled over one ring
(3) Final position, sleeve centered over joint

Simplicity—the best insurance against defective joints

From a practical standpoint, the less skill required in assembly, the less the danger of defective joints in the field. The dependability of the Simplex Coupling is due primarily to these distinctive features:

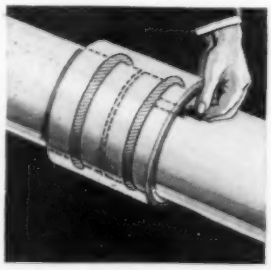
1. It is actually a pre-fabricated, "*packaged*" joint. The ends of the pipe and the inside of the coupling are machined to exact dimensions. The rubber rings are precision-made and subjected to rigid inspection before shipment. Joints are assembled cold—no pouring, caulking or heating equipment is needed. A simple hydraulic coupling puller, loaned by Johns-Manville without charge, is the only tool required for assembly.

2. The effectiveness of the joint does not depend on the individual skill or training of the workmen. So simple is the operation that perfect Simplex joints can be made quickly and economically even by completely unskilled crews.

The Simplex Coupling is assembled with a hydraulic puller. The collar engages the edge of the Transite sleeve; the jack fits over the open end of the pipe.

Made of Permanent Materials

The Transite sleeve, like the pipe itself, is made of asbestos and cement and has the same high degree of resistance to all forms of corrosion. The rings, made of the highest quality rubber, are carefully cured and specially compounded with anti-oxidents and properly graded non-hygroscopic fillers to assure permanence in water service.



With Simplex Couplings, tightness of the joint can be determined from the outside as soon as the pipe is laid. A thin steel blade, slipped under the lip of the sleeve, checks the position of the rubber ring. If the position is right, the joint is tight.

. . . and a word about Transite Pipe

Simplex Couplings, designed specifically for use with Transite Pipe, have solved the joint-leakage problem for many American municipalities. And Transite Pipe has helped bring other waterworks problems under control—tuberculation, soil corrosion and electrolysis, and the toll they exact in excessive operating and maintenance costs, to mention but a few. Full details on Transite Pipe and Simplex Couplings are in Catalog TR-11A. We'll be glad to send you a copy. Johns-Manville, 22 East 40th Street, New York, N. Y.

NOTE TO ENGINEERS: The "J-M Pipe Installation Manual," a 76-page book that outlines in detail effective methods of installing water lines, contains much more data on the Simplex Coupling than was possible to include above. A copy will be sent you on request.

Johns-Manville TRANSITE PIPE

For efficient, economical water and sewer lines

Temporary Shelter in the Defense Housing Program

THE following statement as to temporary shelter to be provided under Public Act 9, Seventy-seventh Congress, has been issued by the Division of Defense Housing Coordination:

All of the housing in the defense housing program is intended for *permanent* use, except the Temporary Shelter. Defense housing programmed for permanent construction is, of course, intended for permanent use; and defense housing programmed for demountable construction is intended for use in its original location as long as it is needed and, thereafter, for use at some other location where it is needed.

Acute defense housing conditions exist which do not fall within the scope of the measures under which defense housing is now being provided. These include:

(a) Areas in which defense housing is needed pending completion of conventional houses, and

(b) Where construction of regular defense housing is not advisable because the continuity of need is too indefinite.

Where the regular defense housing cannot be provided in time to meet a critical need, temporary shelter may be put in to tide over until the regular defense housing is ready. Government-supervised trailer parks or motor courts may be used for temporary family accommodations, and/or temporary dormitories may be used for single men or men coming in ahead of their families, or boats may be used, or a combination of these.

Where dormitories are needed for single men or women during the period of the defense program, but probably not thereafter, such dormitories may be of demountable type but of design suitable for occupancy for a period of years.

Government temporary shelter in the form of trailers is expected to be used for only a period of a few months by any one family, until that family is provided with regular defense housing. These trailers, after occupancy for a short period only by one family or by a series of families, would be moved as soon as possible, and used in some other locations where they are needed. The same would be true for temporary dormitories and ships.

The standards of interior space and of sanitation for all temporary shelter are planned to meet the standards promulgated by this office, as reviewed by the Public Health Service.

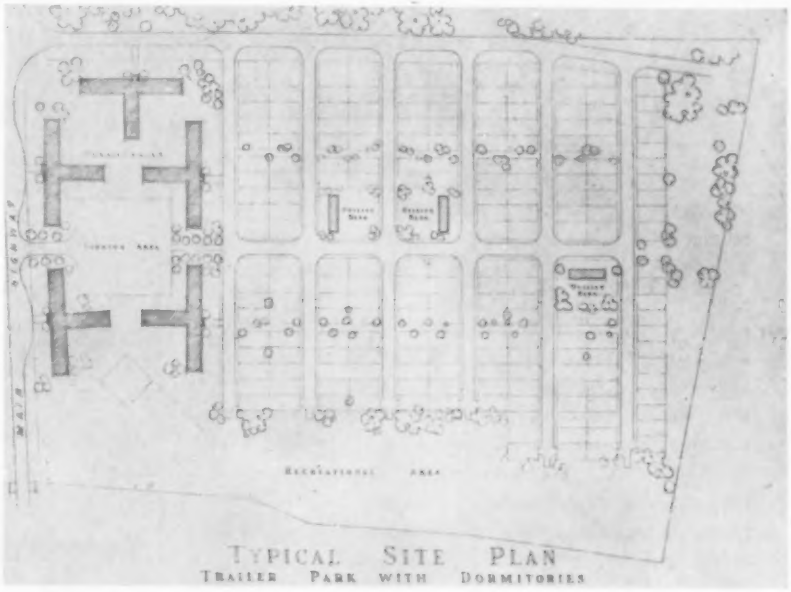
For government trailer temporary shelter and for emergency dormitories, leased sites will generally be used.

The temporary shelter to be provided is not intended to take the place of permanent housing. It is intended to meet an emergency temporary need only.

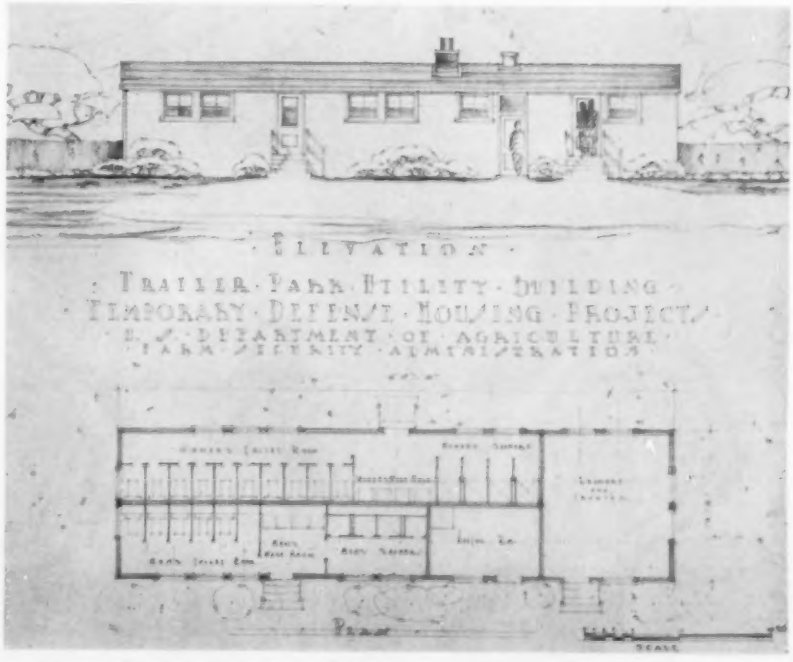
Advantages of Trailers as Temporary Shelter

In a letter to the Editor of THE AMERICAN CITY supplementing the foregoing statement, Carl L. Bradt, Director, Temporary Shelter, Division of Defense Housing Coordination, writes:

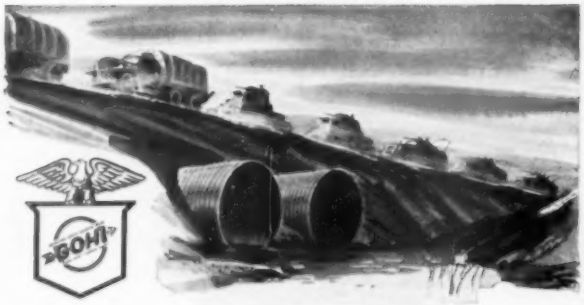
"When the problem presented itself as to what shelter was available which could be provided promptly and have the necessary living facilities, it developed that the trailer could be used best. As you know,



TYPICAL SITE PLAN
TRAILER PARK WITH DORMITORIES



Keeping open the highways of NATIONAL DEFENSE



● To provide for the army that "travels on its stomach," food and material must use the highways, railways and airways. Keeping open these lines of communication is vital to national preparedness, and in all three, GOHI Corrugated Pipe contributes its share, by providing drainage structures to safeguard highways, railway road beds and airports. Buried in the ground, withstanding wear, weather, corrosion, abrasion, the impact of heavy travel, settling and shifting earth, sudden changes in temperature, alternate thawing and freezing, and a score of other destructive conditions, GOHI Corrugated Pipe earns its service stripes for duty ably performed.

A copy of the 72-page GOHI Book on drainage practice is yours for the asking. Well worth writing for. Address the fabricator nearest you.

GOHI PIPE CORRUGATED

New England Bolt Co.	Everett, Mass.
Central Culvert Co.	Ottumwa, Iowa
Capital City Culvert Co.	Madison, Wis.
Bancroft & Martin Rolling Mills Co.	S. Portland, Me.
Denver Steel & Iron Works Co.	Denver, Colo.
The Lane Pipe Corporation	Bath, N. Y.
Dixie Culvert Mfg. Co.	Little Rock, Ark.
St. Paul Corrugating Co.	St. Paul, Minn.
The Newport Culvert Co.	Newport, Ky.

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MILWAUKEE GOES MODERN with HEIL SANITATION UNITS

Milwaukee's new type Heil Sanitation Unit, with a 3 ton tractor, carries a load equal to that hauled by a 5 ton truck and 4 trailers — safer — quicker — more economically. Heil units are quickly and easily loaded through hoppers and a conveyor system — and hydraulically dumped.

Municipalities both large and small are finding that Heil Municipal Equipment gives increased service at lower cost.

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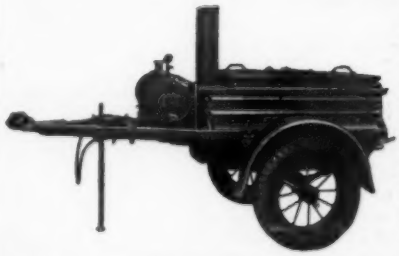

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Style "S" 4 Pass Oil-Burning Tar & Asphalt Heating Kettle is the ideal heater for highway maintenance. Fuel costs reduced 50% and hot material furnished twice as fast. Equipped with 6.00 x 20—6-ply, pneumatic - tired wheels with Timken bearings, truck springs and patented hitch for fast and safe towing.

Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

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TELLS YOU EVERY TIME YOUR TRUCK Stands Idle —and How Long!

BUSY? IDLE? OVERTIME? The little Servis Recorder "tells all"—as shown on its chart (at left). Thus your motor truck writes its own story daily. You SEE all delays at a glance—and correct 'em! Save up to $500 a year per truck! Over 100,000 trucks now equipped. Money-saving booklet free. The Service Recorder Co., 1375 Euclid Avenue, Cleveland, Ohio.

The Servis Recorder
Keeps Trucks Busy

the trailers come completely equipped with stove, ice box, sink, cupboards, and at each end of the trailer there are davenport beds which can be used for davenports in the daytime and beds at night.

Privacy at each end of the trailer can be secured by means of doors in the middle of the trailer.

"From a defense worker's standpoint, a trailer is a very convenient means of housing, as many of the men coming into the various localities have left their homes in other localities, and since they did not know how long the emergency might last, they did not feel like buying additional furniture, should they be able to secure a regular house to rent. The trailer, being furnished, answered their problem for them.

"A utility building, such as is shown in the accompanying plans, is provided for approximately 65 trailers, and is so centered that no trailer will be over 200 feet away. Access roads are put in, as well as an electrical distribution system, so that each trailer is provided with electric lights.

"The defense worker who occupies the trailer pays a rental charge which ranges from $25 to $32 per month; the variation being due partly to locality and partly to the size of the trailers, which vary from 18 to 26 feet in length. This amount includes the trailer furnished except for linen and dishes, the use of the utility building with plenty of hot water and laundry facilities, and electricity is also furnished.

"The occupant of the trailer has to buy his own cooking fuel and heating fuel. Obviously, this amounts to very little per month.

"Each trailer park has a manager and a maintenance staff who see that refuse and garbage are collected, and the trailer park is policed. The occupant is responsible for policing his own trailer site, but the trailer park maintenance crew picks up trash and garbage and keeps the roads, utility buildings and equipment in shape. Night watchmen are provided to patrol the grounds and watch for prowlers and fire.

"It is estimated that there are about 50,000 defense workers who own trailers of their own and have purchased them as a means of solving their particular housing problem. Instead of being compelled to locate their trailer in any old field or lot outside the municipalities, we believe that municipalities should either set up municipal trailer parks along the lines of the one in Washington, or provide ordinances which will permit private enterprisers to set up trailer parks to take care of these defense workers."

A model trailer ordinance is available from the Division of Defense Housing coordination on application.

• • • —

Housing Exhibits Available for Local Showing

THE Central Housing Committee has on hand the following exhibits:

Defense Housing, 1941.—A plan and architectural exhibit, in color. Original consists of 23 panels 4 feet square each, set on standards about 4 inches from the floor. Weight 768 pounds crated.

Two photographic reproductions of Defense Housing, 1941—black and white: 7 panels, one 4 x 2 feet and six 6 x 2 feet, upon which 24 x 24-inch photographs have been mounted. Panels fitted with grommets to permit hanging. Weight 230 pounds crated.

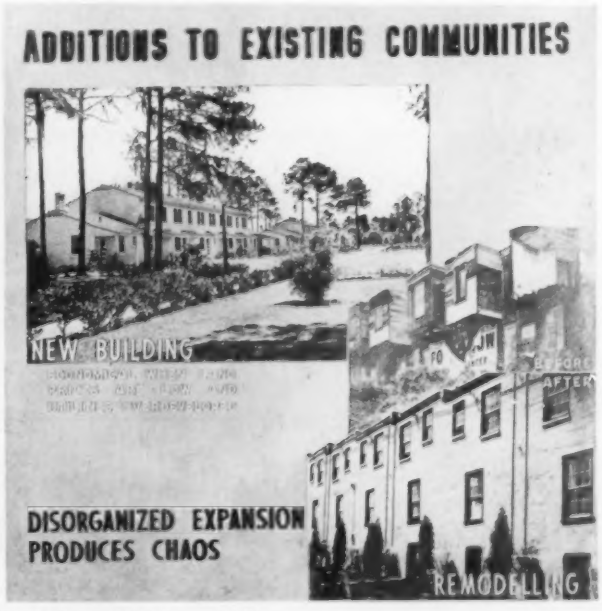
Your Government in Housing.—Reproduction New York World's Fair exhibit with defense housing panel added. Ten panels 5 feet 3 inches x 3 feet. Sets forth Government housing operations. One panel shows listing of Government housing aids and Government housing publications. Two crates, 162 pounds each. Panels fitted with grommets to permit hanging.

The Housing Program of the United States Government.—Reproduction of the International Golden Gate Exposition exhibit in preparation.

Defense Housing Exhibit.—In color. Fourteen panels 4 x 5 feet each, plus four curved sections set on standards 3 feet off the floor. Occupies approximately 650 feet of floor area. Two shadow boxes containing 15 small models of defense housing units. Two crates 938 pounds, plus crate containing glass weighing about 50 pounds.

The architectural exhibits have been accorded extremely favorable reception in about 30 showings, at colleges, universities and design expositions. The Defense Housing Exhibit has been seen at several large expositions. It is an excellent portrayal of the Government's operations in defense housing, including a chart of agency functions in defense housing, a map of the United States upon which defense housing projects are supported, several air-views of defense housing projects and reproductions of defense housing exhibits.

For information concerning future schedules, consult Mrs. Elinor Dodds, Secretary, Sub-Committee on Exhibitions, Central Housing Committee, 1601 Eye Street, N. W., Washington, D. C.



Two Panels from the Exhibit, "Defense Housing—1941"

FOR MORE EFFICIENT STREET SANITATION EQUIPMENT

SEE A SPECIALIST

With its full energies devoted to the study of Street Sanitation problems, ELGIN is a specialist in the truest sense of the word.

For top-notch efficiency in street cleaning, made imperative by today's conditions, there's ELGIN 20—capacity 2½ cubic yards, cleaning a full 9-foot path—and ELGIN Junior—capacity 1¼ cubic yards, cleaning a 5½-foot path.

Doing a better job for less money, the ELGIN EDUCTOR reduces catch-basin cleaning costs 58%, on the average.

With low loading height, automatic loading method, permanently closed body, the REFUSE-GETTER assures refuse collection of the highest order.

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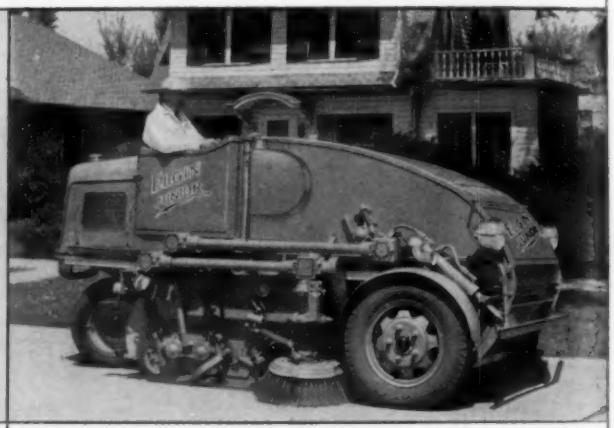
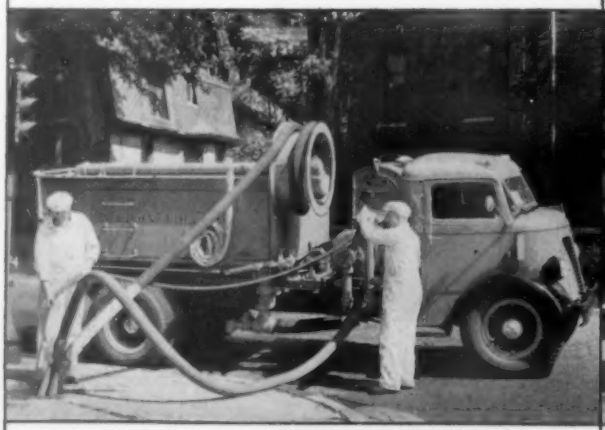
ELGIN 20



ELGIN Junior



ELGIN EDUCTOR

REFUSE-GETTER

Site Planning for Livability

(*Continued from page 37*)

(number of families per acre) is relatively high, there is ample space around the buildings—no dark pockets between houses and no rear yards cluttered up with sheds, garages, and high board fences.

Land use is another factor in outdoor livability. In most projects the tenants have yards where they can do a little gardening and fix a place for the baby to play. In apartment projects the land is carefully fitted for community use. There are plenty of sitting-out places, little playgrounds for little children, and paved laundry drying yards. Always there is a central playground.*

Usually near the playground is the community building. It contains the offices of the management, the maintenance shops, and social rooms. Here the tenants can gather for parties, lectures, club meetings, and cooking demonstrations. There is usually provision for a nursery school and for indoor recreation. The community building is a strong fortress in the battle against slums. There is no forgotten man in a housing project.

Help Needed from City Officials

In many ways, obviously, this arrangement of housing in communities is new and experimental. And this is a point which city officials should keep in mind. It is sometimes inconvenient, certainly, to be confronted with a new organization of old elements in life. But it is obvious that the old way of housing has failed to function smoothly in relation to city growth. And slums are not the only proof of this. In the higher economic strata of housing there is friction and conflict—for example, between housing and traffic, and between housing and the high cost of municipal maintenance. Throughout our cities it is evident that better planning can improve and stabilize living conditions and effect economies of operation. Housing projects are small-scale experiments in new ways of planning. The city planning, engineering, and servicing officials stand to gain a great deal of important data and experience from these experiments.

That is why site planners look to city officials for help in working out their unusual planning problems, and it explains their belief that city officials may wisely look with a charitable eye upon plans that vary in technical details from the standards set up for the very different conditions of ordinary practice. The new technique employed in site planning to meet the requirements of large-scale, single-ownership housing projects is essentially a part of city planning and must become a familiar part of the thinking of city planners. The new technique must soon gain recognition in master plans, in subdivision codes, and in zoning ordinances. City planners, in other words, must also be site planners.

* EDITORIAL NOTE.—See the front cover of this issue and an article on "Recreational Planning for Low-Rent Housing," by Howard L. White, page 38.

• • • —

Mixer Design and Asphalt Mixer

(*Continued from page 77*)

blades must be kept down to prevent carrying of the material. A 6- to 7-inch width is as large as needed.

(4) The mixer-box capacity of the larger mixer must not be made too roomy. A compact mass with an adequate number of blades will result in a better kneading action.

A great deal of research is still needed to determine the ideal arrangement and setting of the blades. I confidently believe that a large-capacity mixer conforming to these recommendations will turn out a much superior hot mix, and the mainly claimed advantage to the plant man, that of time saving, will be justified without sacrificing the quality of the product.

There is one more caution that need be stated, and this applies primarily to the plant man. Do not use the same mixer for topping and for binder mixes. Clearance allowance between the blade tips and mixer lining necessary for coarse mixes is too great to give a good topping mix. If the clearance is made for topping, the use of ¾-inch or larger stones in the binder mix will wear the tips of the blades down rapidly, leaving dead areas at the bottom of the mixer where no topping will be mixed. If this caution is followed and blade adjustments made from time to time to eliminate dead areas, there should be no difficulty in obtaining a "good" mix, provided the other factors discussed above are applied.

• • • —

Sewage-Gas Engines

(*Continued from page 71*)

This Climax 100-hp 8-cylinder engine, Model R81, is arranged to drive an 11,000-gpm Economy sewage pump at 720 rpm. This engine, operated either by gas or by gasoline, is entirely independent of outside power, since it operates on a storage battery. The combination of the two engines could thus supply sufficient pumping capacity, with electric current from the Worthington unit and the direct drive of the Climax, to handle the pumping requirements for any reasonable period during which electric power was not available.

The sewage-treatment plant at Cedar Rapids, Iowa, is operated under the direction of John McIntyre, Superintendent.

. . And 12 Miles To the Nearest Telephone

Motorola Police Radio Saves Another Life

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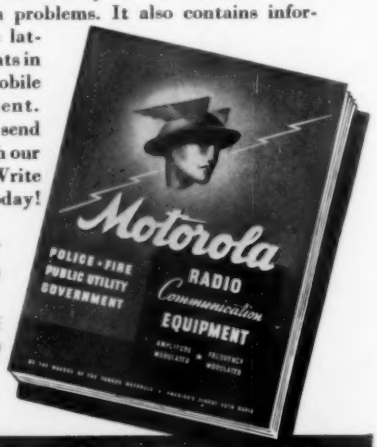

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TWO-WAY RADIO COMMUNICATION EQUIPMENT

GALVIN MFG. CORPORATION ★ CHICAGO, ILL.

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 60 John St., New York

Charles G. Beckenbach, Chairman; Merwyn A. Kraft, Vice-Chairman; David M. Baldwin, Martin Bruening, Stephen Butterfield, Edgar F. Copell, John B. Ecker, Fred W. Fisch, Theodore W. Forbes, Milton Harris, E. Emmett Kirwin, Foster M. Kunz, Walter Matthews, Henry W. Osborne, I. S. Shattuck, Matthew Stelski, Frederick Tarbox

The Case for Parking Meters

Nationally and with Special Reference to Three Oregon Cities

TWO hundred and fifty-one American cities located in 29 states and the District of Columbia and varying in population from Cleveland, Ohio, with 878,000 inhabitants, to Lake George, N. Y., with 803 inhabitants, had parking meters in operation by March, 1941. Sixty-one cities with parking-meter installations have less than 10,000 population. Original installations were made in a total of 18 cities in 1936, 25 in 1937, 35 in 1938, 51 in 1939, and in 106 cities between January 1, 1940, and March 31, 1941. The cities with parking meters in operation fall into the following population groups:

Population	No. of Cities
Over 500,000	4
200,000-500,000	15
100,000-200,000	24
50,000-100,000	33
25,000- 50,000	39
10,000- 25,000	75
5,000- 10,000	38
Under 5,000	23
Total	251

To date, 24 cities have removed their parking meters after a trial installation, but 4 of these cities reinstalled them.

The parking meter has been developed to improve existing methods of dealing with the parking problem—a problem that has become increasingly difficult to handle in most American cities. The number of automobiles in use by persons having business to perform in the central district has steadily increased. Long ago most cities found it necessary to place a legal restriction on the periods of time that motorists might park their cars in central districts. But the enforcement of time restrictions has required a larger police personnel than most cities have been able to provide from available tax sources. Inadequate enforcement has tended everywhere to decrease the effectiveness of legal time restrictions. Furthermore, professional men and the proprietors and employees of business establishments in the central area have been able to circumvent the time limit regulations by moving their cars around all day from place to place in the shopping district. As a result, there has been insufficient street parking space available in the shopping district for shoppers and for those who come to the city's center to conduct business at the bank, the post office and elsewhere.

Should the curb space in the business district be used by business-district employees, by persons wishing to make all-day use of the streets, or by individuals coming to the business district to transact business which can be completed in a short time?

The parking meter automatically restricts the use of shopping-district parking space to those planning only a limited stay. Those employed in the downtown area either are given sufficient incentive to walk from the unrestricted parking districts or find it cheaper to rent off-street spaces. The parking meter therefore reserves space in the central district for that type of traffic which contributes most to the business of merchants and professional men. Traffic congestion in the central district is decreased by the parking meter, because double parking and cruising are greatly curtailed when parking space is more readily available.

The parking meter has become popular with police departments wherever installed, and merchants and business and professional men—many of whom originally opposed the installation of meters—now view parking meters with favor. The parking meter has likewise solved for cities the problem of securing sufficient funds for adequate traffic control.

The reasons reported for the removal of parking meters in 24 cities are:

1. Unfavorable court decisions made removal necessary.
2. A city-wide referendum on parking meters was unfavorable.
3. Parking meters discouraged tourists from stopping on their way through the city.
4. Motorists generally complained.
5. Merchants complained that the meters reduced their business, particularly out-of-town patronage.
6. Motorists boycotted meters.
7. In specific instances meters were removed because they were not paying.
8. Shoppers did not like the idea of paying to park.
9. The newspapers were opposed to meters from the beginning.

Most of these reasons have no relation to the effectiveness of the meters in improving parking practices and indicate, rather, improper installations or failure to conduct an adequate educational campaign. A careful survey of parking needs should precede the installation of parking meters in any city. This is necessary not only to determine whether there is a need for parking meters, but after that need has been ascertained to determine boundaries of the district to be metered.

Types of Parking Meters

Two general types of meters are in use—the automatic and the manual. The number of cities in the United States having the different types of machines follows:

Experience in Three Oregon Cities

Installation.—The city of Portland installed 1,400 parking meters in March, 1938, and additions since that time bring the number to 1,850. The City Council recently authorized the purchase of an additional 350 Dual meters for extension of the one-hour district. This brings the total number of meters in operation in Portland to about 2,200. All the Portland meters are of the automatic type, an equal number of Dual and Karpark meters being in use.

The city of Eugene has 260 Dual and Miller meters in operation. They allow 12 minutes parking for one penny, 24 minutes for two pennies, and one hour for a nickel.

The city of Astoria installed 352 Dual parking meters during June, 1940. Twelve minutes are allowed for one penny, 24 minutes for two pennies, 36 minutes for three pennies, and one hour for a nickel. Three pennies or

The information in this article is part of a report made by the Bureau of Municipal Research and Service of the University of Oregon, cooperating with The League of Oregon Cities.

WAGNER *Type* Y-H
Constant-Current Regulators Cut Costs...Assure Dependable Street Lighting

The Wagner Type Y-H Constant-Current Regulator furnishes constant current to the lamp circuit from zero load (short-circuited loop) up to full load and even overloads. This new type regulator has many outstanding features, some of which are:

1. **EFFICIENT OPERATION**—This new regulator operates at high efficiency from fractional to full load... has unity or leading power-factor... the current drawn from the line is in direct proportion to the load... regulator has no moving coils ...makes instant adjustment to changes in load.

2. **EASY INSTALLATION**—The regulator and all control equipment are mounted into one rugged, compact unit, suitable for pole, platform, or vault installations without reassembly of any parts.

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Blaw-Knox Forms are built for long service; quick installation and dismantling; and are rigidly braced to hold their position when being filled with concrete.

Blaw-Knox Catalog No. 1527 shows how any design or cross section of work can be accommodated with Blaw-Knox Steel Street Forms. We'll gladly send you a copy.

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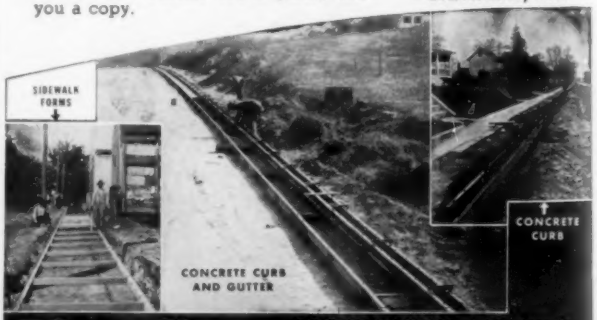
- Straight or Battered Curbs
- Integral Curb
- Any shape of Curb Face
- Sidewalks, etc.



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STEEL STREET FORMS

two nickels can be deposited in these meters at one time.

Revenues.—Cities throughout the country collected some six million dollars from parking meters during 1940. Collections in Portland during that year amounted to $172,363. An average of 32 cents per day, or over $8 per month, was collected from each meter in Portland. Eugene's meter collection totaled $18,421 in 1940. The average collection per meter was 23.35 cents per day and $5.84 per month. In Astoria, meter receipts totaled $12,150.43 during the seven months of 1940 in which the machines were in operation. The average monthly income per meter has been $5.90.

Disbursement of Revenue. — The legal theory under which parking-meter charges have been upheld assumes that the revenues are necessary for the proper regulation of parking and traffic, and requires that the funds collected be devoted to these purposes. In each of the three Oregon cities the revenues are therefore used for general traffic control purposes, and for defraying the cost of purchasing and operating the meters.

Portland's expenditure of parking meter revenues and its budget for 1941 parking meter revenues follow:

	March 3, 1938 to Dec. 31, 1940 Total	Budget for 1941
Collections:	$454,858	
Disbursements:		
Meter payments	88,778	
Collection and maintenance cost	30,725	17,591
Police officers and equipment	70,979	61,424
Fixless tag system	28,319	
Traffic control maintenance and betterments	225,352	86,841
Traffic safety commission	5,631	12,500
Totals	$449,786	$178,356
Balance	$5,071	

The Eugene budget for 1941 allocates anticipated parking-meter revenues as follows:

Collector and serviceman	$1,620
Traffic checkers (2)	2,700
Treasurer, 40% of time	890
Traffic-line painter	1,275
Supplies and expense	250
Parts	200
Equipment	160
Insurance, painter's car	19
Payments to parking-meter companies	7,871
Total estimated revenue	$14,985

Actual expenditures from the parking-meter account of Astoria during the last seven months of 1940 were as follows:

Installation cost on 352 meters @ $3 each	$1,056
Purchase of meters	5,708
Engineering and Street Departments	1,066
City Manager—supervision	$50
City Treasurer	560
Police Department	2,890
Collection expense, etc.	287
Miscellaneous supplies and repairs	231
Total	$12,150

The parking-meter revenues have enabled all three cities to increase their work in traffic control, traffic safety and traffic engineering. In Portland the Traffic Division in the Police Bureau had added officers who have been given a special course of training in traffic-control work. A traffic-engineering division, which had already been set up in the Public Works Department, has been provided with funds for traffic-control equipment and construction. A traffic-safety commission has been organized to carry on an educational campaign in traffic safety. Thus a well-balanced program designed to improve the flow and increase the safety of automobile traffic has been made possible. Two additional traffic officers have been employed in Eugene and three in Astoria, and traffic-engineering work has been augmented. When the cost price of the meters has been paid, additional funds will be available for traffic enforcement, traffic engineering and traffic safety education.

A 50 per cent reduction in traffic deaths during the first six months of 1941 as compared to the first six months of 1940 has been achieved by the enforcement, engineering and educational program of the Portland agencies. Traffic deaths have been reduced from 36 in the first six months of 1940 to 17 in 1941. In 1934, the worst year for traffic fatalities in the city of Portland, there had been 44 deaths by the end of June. Accidents involving property damage are, however, still on the increase, but the more serious type of accidents have been minimized by the new programs.

Operation.—In Portland and Eugene the parking meters are in operation on business days from 9 A.M. to 6 P.M., and in Astoria from 10 A.M. to 6 P.M. In Astoria parked cars are checked at 12-minute intervals in the metered area. In Portland they are checked once per hour in the one-hour zone and oftener in the 30-minute zones. Portland follows the policy of allowing 8 to 10 minutes extra time on one-hour meters, and five minutes on half-hour meters before issuing parking tickets. Astoria and Eugene give out slips immediately upon the expiration of the metered time. The installation of meters has made it possible to reduce the number of men on parking-control work in the city of Portland, and traffic officers formerly assigned to checking cars have become available for other types of traffic work.

To accommodate business establishments having deliveries to make in the metered areas, Portland and Eugene have reserved loading zones which may be used by delivery trucks throughout the day. All delivery trucks are allowed to stop free anywhere in the metered area until 10:30 A.M. in Portland, and may receive permits to stop free for 20 minutes in any metered zone during the rest of the day. Private parking lots and garages report a slight increase in business as a result of the installation of parking meters in all three cities.

Enforcement of Parking Restrictions.—Parking meters have facilitated the enforcement of time restrictions in all three cities. First, the detection of parking violations is made easier; in fact, the installation of meters in Portland has made it possible to reduce the number of men assigned to checking in the metered areas. Second, in Astoria and Eugene the availability of additional funds has made more frequent and consistent checking possible than before. Third, both city officials and the public have supported more rigid enforcement and the elimination of the "fixing" of parking tickets. Motorists who park overtime in the metered area are fined one dollar for each violation in Portland and Eugene, and 50 cents for each violation in Astoria.

Collections and Repairs.—Once installed, the meters require further attention. They need to be repaired, and the coins motorists insert in them must be collected. Portland maintains a staff of four meter service men and a repair shop to which all meters are periodically brought for a complete check-up. Its service men receive salaries of $125 and $135 monthly. Eugene has a full-time service man receiving a salary of $135 per month to keep the machines in repair and to collect the coins. In Astoria the meters are serviced by a local jeweler at a cost of $100 per month. In Portland the costs of servicing, including collection, are estimated to amount to $10 per year per meter.

Public Opinion. — Although some merchants, business and professional men located in the central business districts expressed vigorous opposition to parking meters prior to their installation, surveys made after the meters had been in operation for some time revealed that parking meters had gained the support of a large majority of this group in all three cities. Four months after parking meters had been installed in that city the City Club of Portland reported the results of its extensive survey as follows:

"Portlanders definitely like parking meters. This conclusion was reached after tabulating 3,083 questionnaires which were circulated among the occupants of 24 office buildings in the downtown district. Almost 81 per cent of those answering the . . . question, 'Do you personally like parking meters?' said 'Yes' . . . In answer to the question, 'Do you think they are a

TULSA REORDERS 300 DUAL METERS

. . . after one month's trial!

Dual Automatic Meters prove instantaneous success in the "Oil Capitol of the World!"

In August, 1941, the city of Tulsa made an initial installation of 200 Dual Automatic Meters. These meters were so enthusiastically received by the public and by city officials as well that a reorder of 300 Dual Meters was placed a month later — on September 19th. More proof that DUAL AUTOMATIC METERS are the most satisfactory answer to the parking control problem. Since January 1st, 1941, Dual has received 43 initial awards and 37 reorders, — total of 80 awards so far this year for Dual Automatic Meters!

What DUAL AUTOMATIC PARKING METERS have done for other cities, they can do for your city if you have a traffic problem.

The Original CARL MAGEE METER . . . Licensed under Vehicular Parking, Ltd.

DUAL PARKING METER CO.

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good thing for Portland?' 84.3 per cent said 'Yes' . . . Over 78 per cent of the persons answering said that their customers, clients or patients liked parking meters . . . Almost 77 per cent of the persons answering . . . indicated that the housekeeper in their home liked parking meters."

Recent samplings of the opinion of merchants and business men reveal that 80 per cent of those in Eugene and 90 per cent of those in Astoria feel that the parking meter has contributed to the solution of the parking problem.

A survey of the automobile owners in Portland showed a large majority in favor of parking meters. The survey was conducted by Dan E. Clark II, director of the Oregonian Front Door Ballot Box, and the results were reported on January 16, 1940, as follows:

"Automobile owners of Portland stand two-to-one in favor of parking meters. When automobile owners were aked, 'Do you think parking meters downtown should be removed?' the following figures resulted:

	Yes	No	No Opinion
Men	28%	66%	6%
Women	34%	57%	9%

Legality

The parking meter ordinance raises three principal legal questions, all of which may be covered by the general question: Is the parking-meter ordinance a proper exercise of municipal police power? The three questions are: (1) Does the parking meter ordinance unduly restrict the public's right to use the streets? (2) Does it unconstitutionally deprive the abutting property owner of his right of ingress and egress to and from the streets? (3) Does the large amount of revenue which parking meters yield require the ordinance to be regarded as a tax measure instead of as a police or regulatory measure? According to the weight of judicial authority each of these questions is to be answered in favor of the validity of parking-meter ordinances listed below:

Parking-meter ordinances and other parking-meter legislation have been upheld in the following cases: *State ex rel. Harkow* v. *McCarthy*, 126 Fla. 433, 171 So. 314 (1936); *Ex parte Duncan*, 179 Okla., 355, 65 P. (2d) 1015 (1937); *Opinion of the Justices*, 297 Mass. 559, 8 N. E. (2d) 179 (1937); *Hendricks* v. *City of Minneapolis*, 207 Minn. 151, 290 N. W. 428 (1940); *Gilsey Buildings, Inc.* v. *Incorporated Village of Great Neck Plaza*, 170 Misc. 945, 11 N. Y. S. (2d) (1939); *Clark* v. *City of New Castle*, 32 Pa. Dist. & Co. R. 371 (1938); *Owens* v. *Owens*, 193 S. C. 260, 8 S. E. (2d) 339 (1940); *Harper* v. *City of Wichita Falls*, 105 S. W. (2d) 743 (Tex. Civ. App. 1937); *Ex parte Harrison*, 135 Tex. Cr. R. 611, 122 S. W. (2d) 314 (1938); *County Court of Webster County* v. *Roman*, 3 S. E. (2d) 631 W. Va. (1939); *Kimmel* v. *City of Spokane*, 109 P. (2d) 1069 (Wash. 1941).

Cities which have secured the best results from parking-meter installations have emphasized the following steps:

1. There should be a careful survey of parking practices and existing time restrictions to determine whether parking meters are necessary. If the survey reveals that the installation of parking meters is advisable, the survey results on different streets should be studied carefully to determine the area in which installations should be made and the time limits be set.

2. The city should prepare specifications designed to secure the type of parking meters which will best meet the local situation. Special attention should be given to the parking time that may be allowed and to mechanical features which have proved most successful. Every company able to meet the specifications should be invited to bid.

3. Before placing parking meters in operation, the city officials should explain the reasons for installing the meters, should describe the method of operating the meters, and should ask the cooperation of the public in the observation of parking-time limits.

4. Parking-time limits in the metered and unmetered areas should be enforced rigidly. There should be no "fixing" of parking tickets.

5. All meters which get out of order should be repaired or replaced promptly.

• • • —

Nearly Everybody Likes Kansas City's New Trolleys

THE heavy-traffic Troost Avenue route in Kansas City is now served by two dozen new streamlined street cars. When Powell C. Croner, President of the operating company, gave the signal for the parade which introduced the cars, a brass band started from the car barn, followed by an old-time horse-car and the 24 black-and-canary cars containing 350 luncheon guests.

Said the Kansas City *Star*: "Nothing like this step-up in service has occurred on Troost Avenue since electric operation in 1902 replaced the then 15-year-old cable line. As there are more than 500,000 Troost Avenue passengers a month, the minutes cut off the downtown and homeward trips add up to an enormous aggregate time-saving."

"A Super-Colossal Ride—New Rail Beauties on Troost Are Silent and Smooth," said the Kansas City *Times* headline.

"Engineering and Designing Skill Make New Kansas City Street-cars the Best in the World," said the Kansas City *Journal*.

The Kansas City Public Service Co. has become the 17th operator to install modern surface cars, of which about 2,000 are now in use. Its 24 new Presidents' Conference Committee cars were built by the St. Louis Car Co. Sixteen of them have General Electric motors and control; eight have Westinghouse. The street cars previously serving the Troost line seated 42 passengers, and weighed about 54,000 pounds; the new cars seat 54 and weigh 34,000 pounds.

One of the Kansas City, Mo., Canary-Colored Modern Street Cars

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the NEW L-M PRISMALITE Luminaire...the First concealed light-source luminaire using a prismatic glass reflector

By using a glass-prism reflector, L-M Illuminating Engineers have utilized a reflection principle completely new to concealed light source luminaires. As a direct result of this prismatic glass reflector, the L-M PRISMALITE luminaire is the first to give you these three vital advantages:

HIGH IN LIGHT OUTPUT: The scientific shape and design of the prismatic reflector gives the L-M PRISMALITE luminaire the high, effective light output of a modern, concealed light-source luminaire.

PERMANENT IN EFFICIENCY: Because glass is an inert material, impervious to atmospheric conditions, the high original reflection factor of the L-M PRISMALITE luminaire is permanent.

ECONOMICAL IN MAINTENANCE: Dustproof design reduces necessity of frequent cleaning. Interchangeability of parts keeps upkeep at minimum. Added to this the low initial cost and the permanent high efficiency, the L-M PRISMALITE gives you more for your street lighting dollar investment.

FULL FACTS! The new, illustrated booklet LMB-4131 gives details and complete information on the L-M PRISMALITE luminaire. Ask your L-M representative for it. Or write for your copy now to Line Material Company, General Offices, Milwaukee, Wisconsin.

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Do you mention THE AMERICAN CITY? Please do.

Outdoor Lighting

Streets—Highways—Floodlighting

Determining the Real Values of Better Street Lighting

By JOHN D. HAUGHEY
Street Commissioner, Newton, Mass.

AMONG the duties and responsibilities of the Street Commissioner there is one which creates too little public interest but which makes an important contribution to the public's safety and comfort—the provision of adequate economical highway illumination.

Newton, Mass., the "garden" city with a population of 69,873, is six miles from the center of Boston. The 1939 tax levy was $5,096,915, with a tax rate of $30.20 per thousand predicated on an assessed valuation of $167,344,800. Newton has 290 miles of streets, of which 197 miles are accepted, which gives it more mileage than any other suburban city or town in New England, and more than one-third of Boston's mileage.

Newton is gridironed by a system of numbered heavy traffic routes and main arteries. Route 9 (Boston to Worcester) runs east and west through the city and is the main route of traffic west. It is paralleled by Route 30, also heavily traveled. Route 128, a circumferential highway avoiding the center of Boston and providing a link between the North and South Shores, extends north and passes directly through the center of Newton. Route 16 passes through the city northeasterly and connects the westerly through routes and by-traffic from the adjoining communities of Wellesley and Watertown. The main arteries carry their proportionate share of cross-city traffic.

Those who have wrestled with municipal budgets will appreciate the situation which confronted the Street Department in 1939. Our newly elected Mayor, Paul M. Goddard, was pledged to an administration of economy, and with departmental appropriations of $994,743, almost 20 per cent of the total tax levy, it was apparent that the Street Department expenditures were in for close scrutiny.

The first task was to weigh every item of department expense to ascertain whether or not value was being received. The largest single item in the appropriation was $145,000 for street lighting, approximately 15 per cent of the total department expenses. Was this expenditure too large? From the accompanying analysis, it was evident that, compared with other cities and towns of similar size, although our per-capita street-lighting cost was high, our other street-lighting costs were average.

ANALYSIS OF STREET-LIGHTING COSTS
CITIES AND TOWNS WITHIN TEN-MILE RADIUS OF NEWTON

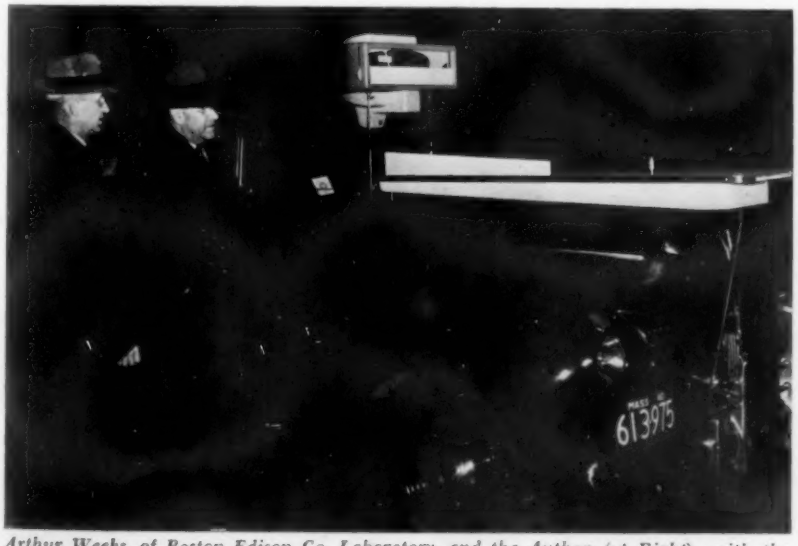
City or Town	Population 1935 Figures	Cost of Street Lighting 1939	Cost per Capita	Miles of Streets	Cost per Mile	Assessed Valuation 1939	Cost of Lighting Per $1,000 Valuation
A	38,539	$48,245.01	$1.25	101	$477.67	$58,699,800	$.82
B	50,319	66,826.75	1.33	76	879.30	158,978,500	.42
C	42,673	42,652.47	1.00	42	1,015.54	45,760,900	.93
D	22,651	31,776.24	1.40	121	262.61	33,056,881	.96
E	18,147	35,266.91	1.94	82	430.08	40,429,835	.87
Newton	66,144	143,165.03	2.16	290	493.67	167,344,800	.86
F	100,773	86,325.22	.86	100	863.25	114,124,400	.76
G	40,557	39,090.23	.96	117	334.10	50,867,400	.77
H	35,827	44,773.63	1.25	71	630.61	51,026,270	.88
I	19,695	21,888.49	1.11	93	235.36	20,575,025	1.06

A study of accidents left no doubt that the adequacy of our street lighting was closely related to our night-time accident record. The following shows the total number of fatalities and injuries for six years:

Motor-Vehicle Fatalities and Injuries in Newton

	1934	1935	1936	1937	1938	1939
Fatalities	5	6	14	11	5	10
Injuries	667	673	559	691	654	663

Daytime accidents were decreasing owing to speed restrictions, signs, signals and police enforcement, but night-time accidents were increasing. We found that 40.4 per cent of all personal-injury accidents occurred during the hours of darkness, and 59.6 per cent



Arthur Weeks, of Boston Edison Co. Laboratory, and the Author (at Right), with the Street Lighting Evaluator Whose Operation and Local Findings Are Described in This Article

America's NEW WORKING SCHEDULE DEMANDS Modern STREET LIGHTING

Industry has buckled down to the job ahead. Two- and three-shift operations are essential in many plants to meet defense demands. This means more men are on the move at night—more trucks and cars are traveling the streets and highways. If all past records hold true, there can be but one result—a tremendous increase in after-dark fatalities* unless the communities involved modernize and extend their street lighting systems.

Union Metal *steel* standards have been an integral part of modern street lighting practice for over 30 years. Proper mounting heights, strength, low-cost maintenance and attractive appearance are all features common to every standard in the Union Metal line, which is comprised of over 4000 different designs.

Let's bring your street lighting up to defense requirements. It will pay big dividends both now and in the normal times that follow. Union Metal engineers are always at your service to help you with your plans. Write for Catalog No. 71.

**There were 20,000 night fatalities in 1940*

THE UNION METAL MANUFACTURING CO.
CANTON, OHIO

Walnut Street, Newton, Mass., Lighted by 10,000-Lumen Lamps in General Electric Luminaires Hung on Union Metal Brackets

during the hours of daylight. The startling fact was that the personal-injury accidents which occurred during the hours of darkness occurred when only 25 per cent of the total traffic volume was moving. Night driving was twice as hazardous as day driving.

It was evident that remedial measures would reduce deaths, suffering and economic loss. In ten years, $3,124,156 has been paid on claims as a result of personal injuries received from private passenger automobile vehicles in the city of Newton.

Light the Hazards

If street lighting was to be used as one means of reducing night-time accidents, it was apparent that it should be applied where the largest percentage of accidents occurred. For an 18-month period, it was found that the main arteries and numbered routes with a total car volume of 40,508,210 cars, accounted for:

340	Accidents
10	Fatalities
504	Personal injuries
99	Pedestrian accidents

Of this total, that portion of Route 128 (Walnut Street) which lies within the limits of Newton accounted for the following:

	8.3%	of traffic volume
	11.5%	of the accidents
(47)	9.3%	of persons injured
(14)	14%	of pedestrian accidents

Because of its accident record and the fact that it was to be resurfaced during 1940, Walnut Street was chosen for test. Giving proper consideration to the "New Technique" in street lighting, luminaires were selected which best provided:

(1) Maximum road surface brightness for the automobile driver, against which objects may be discerned as silhouettes.

(2) Minimum of glare by having the light source located within an inverted reflector, to which the globe is attached, thus shielding the light from the eye of the observer.

(3) Reflecting system on the house side, which distributes the major portion of the light up and down the street.

Luminaires meeting these requirements were installed on 6-foot mast arms approximately 22 feet above the road surface, spaced 150 feet apart on a staggered plan. There has not been a sufficient lapse of time to determine the effect of improved lighting on our accident experience; but we have had measurements made by the Street Lighting Evaluator developed by Reid and Channon of Nela Park. The Evaluator, mounted on an automobile, consists of photometric apparatus designed to measure pavement, obstacle, and glare brightness in foot-lamberts (lumens per square foot). These three factors in a street-lighting system combine to produce VISIBILITY:

(1) *Pavement brightness* of adequate amount and fair uniformity is needed not only to reveal the surface itself but also to provide a background against which obstacles are seen in silhouette. This is the predominant method by which objects are seen on lighted roadways.

(2) *Obstacle brightness* also aids in safe seeing. One may become aware of an object because it presents an area brighter than its background, or its details may even be recognizable.

(3) *Glare* from street lamps or other sources in the field of vision causes a reduction in visibility in an amount depending upon their location and the candlepower in the direction of the eye. Discomfort is another effect of glare, with which no one has yet learned to deal quantitatively.

The technique of measurement consists of making photometric balances of pavement brightness against a sample which has approximately the same color and coefficient of reflection as the pavement, and obstacle brightness against a small figure having a white side of 80 per cent reflection and a dark side with 8 per cent reflection. The white or black side is selected as the conditions require. The pavement and obstacle brightness measurements are taken at selected stations along the illuminated highway and combined with glare measurements taken 200 feet directly behind each station. The reason for taking glare readings at points 200 feet behind the stations is because the operator of a motor vehicle normally views the road 200 feet ahead, and the glare which interferes with his seeing ability is that which is effective at the point from which he is looking, namely, 200 feet behind the measuring station, whereas the pavement and obstacle brightness which affect the driver's seeing ability are those values existing at a point 200 feet ahead.

The measurements of pavement, obstacle, and glare brightness for each location are combined mathematically to produce the Evaluator Rating in accordance with the experimental findings of Reid and Channon. Pavement and obstacle-brightness values add to the Evaluator Rating, and glare brightness detracts, each being weighted in the proportion with its importance determined experimentally. The result, termed "Evaluator Rating," can be directly transferred to the values of the I. E. S. Code minimum values.

The new installation involved changes in the number, location, lumen

LIGHT THE DANGER ZONES and Save Man-hours for Defense

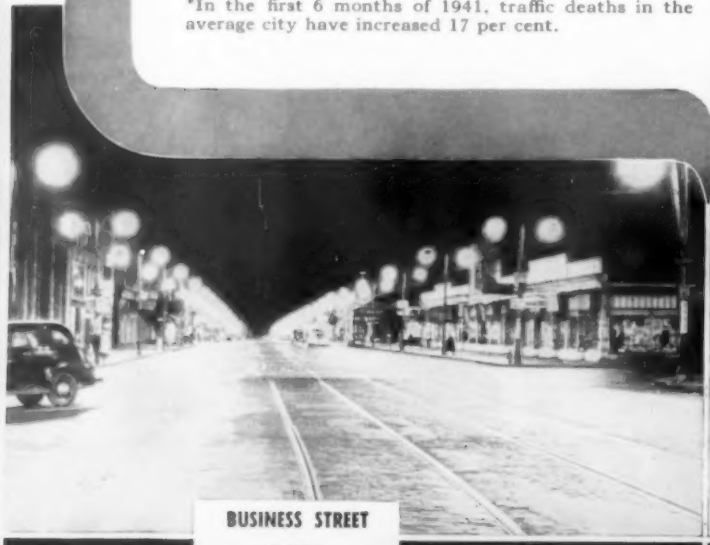
ARE your automobile and pedestrian accidents increasing*—robbing the defense program of time, equipment, and men? Because adequate street lighting is the most effective method of reducing darkness accidents to night-shift and off-the-job employees, *lighting's contribution to defense can be highly important.*

More workers are using automobiles to get to and from their jobs. The distance traveled by the average worker is now considerably greater because many have moved away from the city neighborhoods into the less congested suburbs. Military communities of 10,000 to 60,000 have sprung up where only a fraction of that number lived before—and these thousands of boys want to get to the nearest city whenever they can.

So accidents are bound to increase—unless something is done about it. Install traffic-safety lighting at the danger zones—arterial streets, intersections, curves, underpasses—and you can reduce the number of after-dark accidents by at least one-half.

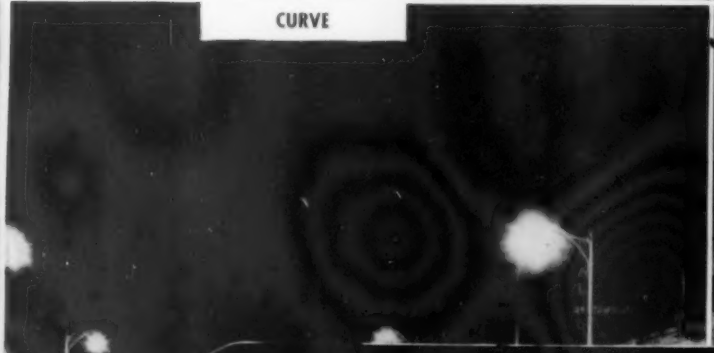
Any municipal government can show a gratifying improvement in the course of a year with adequate lighting. To help you, we have lighting specialists in all the larger cities. They will be glad to tell you about modern lighting—*how* and *where* you can use it most profitably. Why not start today? General Electric Co., Schenectady, N. Y.

*In the first 6 months of 1941, traffic deaths in the average city have increased 17 per cent.



BUSINESS STREET

INTERSECTION



CURVE

ARTERIAL STREET

GENERAL ELECTRIC

454-18-3010

output, and type of units. It was designed to furnish more light and also to direct the light more effectively.

Table 1 gives Evaluator Ratings for both new and old lighting, using pavement Sample B. This sample matches the type of road surface which is to be applied to Walnut Street.

STREET LIGHTING EVALUATOR DATA
WALNUT STREET, NEWTON, MASS.

TABLE 1

Evaluator Rating Pavement Sample B	
Original Lighting	New Lighting
Average Location 1	
2.4	12.6
Average Location 2	
1.3	13.8

It should be observed that the average Evaluator Rating at Location 1 has been increased from 2.4 to 12.6 by the change. At Location 2, the increase is from 1.3 to 13.8. I. E. S. Code minimum values for alley lighting range from an Evaluator Rating of 1.5 to 2.3. Local streets required a rating of 2.3 to 3.2. Thus, it may be seen that the original lighting was adequate only for alley or local streets. The present installation brings the lower range of values into the heavy traffic classification, and Location 2 into the extra-heavy zone.

Table 2 indicates the improvement which may be expected from a lighter-colored pavement surface.

TABLE 2

Average Evaluator of New Lighting	
Pavement Sample A	Pavement Sample B
11.5	13.8

Sample A corresponds to the surface now on Walnut Street, which is to be changed to a surface similar to Sample B. With the lighter surface, the average rating is raised from 11.5 to 13.8, and the minimum from 2.7 to 3.7. Both surveys were made under identical illumination, and the improvement is wholly due to the better reflection factor of the lighter pavement.

The particularly interesting factor in this table is that a lighter-colored surface in a poorly illuminated section increased the rating nearly 50 per cent, whereas in a better-illuminated section the rating increase was only 20 per cent. This indicates that a great improvement in visibility can be effected even on those streets where brighter lights are neither desirable nor practical.

Few, if any, municipalities have the facilities for a scientific analysis of the street-illumination problem. However, by enlisting the aid of the public-service companies, any public official can obtain the data essential to laying out a definite program for safer and more comfortable street illumination. It is with this thought very much in mind that I wish to acknowledge gratefully the generous cooperation of the Boston Edison Co., without which it would have been impossible to initiate anything approaching definite standards.

Sodium Lighting in Salt Lake City

AFTER FOUR YEARS' EXPERIENCE with sodium safety lighting on a three-mile stretch of U. S. Route 91 just outside the limits of Salt Lake City, similar lights were installed early in 1941 inside the city limits, along four miles of Second West Street. "Their need was evident here," said Mayor A. B. Jenkins, "as 16 persons were killed in night traffic accidents in the last four years, and the cause was traced directly to poor visibility."

The 1941 sodium-lighting installation was made by the Utah Power and Light Co. The luminaires are of an open type with airplane-shaped reflectors. The 10,000-lumen lamps are mounted on bracket arms atop ornamental steel poles installed in a staggered arrangement along the street.

Trees Can Cut Off Third of Light

WHEN A CONSIDERABLE AMOUNT OF THE DIRECT LIGHT from a street-lighting source is shielded by the leaves of an intervening tree near to the light, some loss in seeing ability is noticed. When this shielding is heavy, dangerous dark areas appear on the street surface and increase the hazards to night drivers and pedestrians.

To gain some information on this matter, a series of tests were made using the General Electric Street Lighting Evaluator, which measures pavement brightness, obstacle brightness, and veiling brightness (glare) of the street-lighting units. When these three values are combined in their proper relation, the answer can be expressed as Relative Effective Illumination, and represents a measure of ability to see under different lighting conditions.

The tests showed that there was a loss of Relative Effective Illumination between the unleaved and leaved condition of the trees varying from 23 per cent to a high of 40 per cent, with an average of 32 per cent.

K. L. PARTRIDGE,
Distribution Engineer, The Hartford Electric Light Co., Hartford, Conn.

• • • —

Street-Light Billing for Wyandotte, Mich.

(Population 30,618)

ORNAMENTAL UNITS Lumens	Height of Standards Feet	Number Lamps	Monthly Rate	Cost for Year
4,000	14	139	$4.25	$ 7,089
6,000	14	179	4.75	10,203
6,000	18	166	5.25	10,458
10,000	22	147	7.50	13,230
15,000	26	138	8.45	13,993
OVERHEAD UNITS				
22,500	..	530	2.35	14,946
				$69,919

THE MUNICIPAL INDEX SURVEY

• • • —

Intersections You Love to Cross

NIGHT accidents have been reduced 40 per cent over a period of a year at five intersections in San Francisco, where four-cornered lighting installations have been made and are being studied. One of these intersections is shown at left below, where four General Electric pendent-type luminaires containing 10,000-lumen lamps are installed. These are mounted 25 feet to light center on mast-arms extending out over the driving area. At the right is a Los Angeles residential intersection designed for safety.

PUT NIGHT TRAFFIC "In the Clear"

GRAYBAR QUALITY

Via GRAYBAR ELECTRIC COMPANY

WITH THE G-E NOVALUX FORM 79 LUMINAIRE

8 "Extra Value" Features of Novalux Form 79

1. Stepped (lamp saving) reflector.
2. Spun sealed globe holder.
3. Reconditioned reflector exchange.
4. Durable Glyptal finish.
5. Machined joint between hood and reflector.
6. Heavier pressed globe with drip-proof edge.
7. Larger ornamental globe (optional).
8. Available for Type H mercury lamps.

Here's an approach to street and highway lighting problems that means extra safety, extra savings, and extra convenience in getting equipment and supplies. » » » Safety records in scores of communities show lowered accident rates once night traffic moves under well planned installations of lighting units such as the G-E Novalux Form 79. It's not just a matter of "more light," but of scientific design plus proper layout involving such factors as glare, pavement brightness, shadow areas and the like to make more of the light *useful* light. » » » Along with more useful light for your money, you get longer lamp life, due to a reflector design that keeps lamp-stem temperatures down. A permanent spun-sealed joint between reflector and globe cuts glassware breakage, too. » » » By buying Novalux luminaires and other street lighting equipment and supplies "via GRAYBAR," you get the benefits of experienced aid in planning installation, to meet local needs and conditions. What's more, your local GRAYBAR branch is a complete source of supply for poles, standards, mast arms, wire and cable and all accessories that assure maximum performance from the Form 79 or any other lighting unit.

Why not check with a GRAYBAR specialist on the opportunities for putting night traffic "in the clear" in your community? Or write direct for 12-page bulletin which describes features of the Form 79 in detail.

GRAYBAR

IN OVER 80 PRINCIPAL CITIES

***Executive Offices:* GRAYBAR BUILDING, NEW YORK, N. Y.**

GENERAL ELECTRIC STREET LIGHTING

G-E and HORNI TRAFFIC SIGNALS

WESTERN ELECTRIC POLICE RADIO

HORNI & TELETYPE FIRE ALARM SYSTEMS

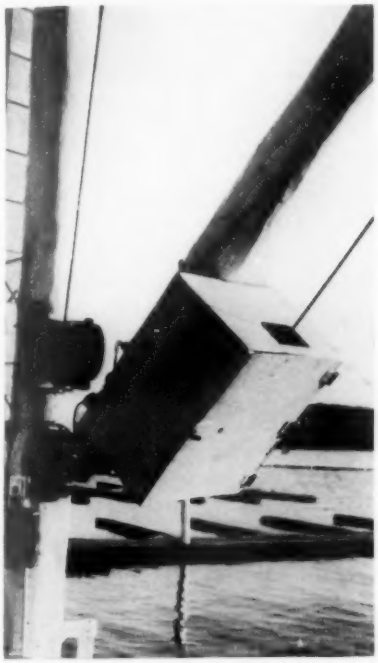
During October we hope you will remember to mention THE AMERICAN CITY.

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

New Yacht Basin Has a Modern Boat Lift

COEUR D'ALENE, IDAHO.—The first unit of a yacht basin, with berths to accommodate 60 boats, has been completed with the aid of WPA, on Lake Coeur d'Alene, on which this city is located. Providing room for 350 to 400 additional boats, the basin is well protected by a boom almost a thousand feet long. Lake Coeur d'Alene is the center of sailboating, surfboard riding and other water sports, and the scene of many water shows to which thousands come each year from Spokane, Wash., 30-odd miles away, and other places many times that distant. Situated at the junction of two important highways, U. S. 10 and U. S. 95, the basin is used not only by resident boats, but by hundreds of transient boats which come and go on the conventional two-wheel trailer.



The Electric Motor Which Powers the Hoist at the Coeur d'Alene Yacht Basin

Of special interest in the new basin is the boat lift or hoist. The main mast is anchored in three directions and the boom has a 30-foot sweep. Completely encased in heavy steel housing, the motor has a hauling speed of 40 feet per minute, requiring only a short time to lift a boat from a car trailer and lower it to the water. Boats are handled in heavy canvas belting slings to prevent any metal from touching them. Always in gear, the hoist has automatic braking, so that it is locked instantly at any position at which the power is shut off.

AXEL M. ROSENLUND,
Acting Mayor.

Tulsa City Commission Takes to the Air

TULSA, OKLA.—"Is it all right if we come to the City Commission meeting Tuesday?" Mayor C. H. Veale of Tulsa was asked recently by R. B. Havenstrite, Chairman of the Civitan Club Civic Committee.

The Mayor, astounded that a well-informed citizen asked permission to attend a meeting of a public body in the United States of America, decided something ought to be done about it.

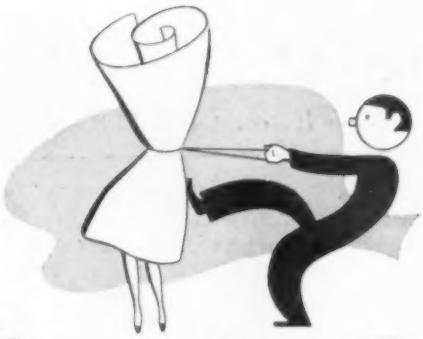
"Action" is the first word in Mayor Veale's philosophy—and a night City Commission meeting on August 26 attended by a record-breaking number of citizens—more than 200—was the result. Thirty minutes of the proceedings was broadcast over KTUL, to an audience estimated by William Gillespie, radio station manager, at around 24,000.

The meeting opened with a brief explanation by the Mayor of the duties of the elected City Commissioners: Russell Cobb, Commissioner of Fire and Police; S. R. Smith, Commissioner of Streets and Public Properties; W. F. Graham, Commissioner of Water and Sewers; and D. H. Pratt, Commissioner of Finance.

"We made no effort to 'put on a show'," explained the Mayor later, "but merely went through our usual business so that the citizens could see what it was like." One off-the-schedule number on the program, however, was provided by the Police Commissioner. Immediately preceding official start of the meeting, the Tulsa Police Department "barbershop quartet" trudged single file into the room singing a

WORKS PROJECTS ADMINISTRATION PHOTOS

Looking Down on Coeur d'Alene Yacht Basin, Showing Boat Berths in Foreground



Tighten the Budget Strings

WITH THE MODERN VAN DORN STREET SWEEPER

● Discard your old standards of street cleaning costs. Set your budget at an all-time low—and this modern Van Dorn Sweeper will keep it there.

The Van Dorn handles street cleaning operations in a way that was never before possible. It collects dirt in handy packages that are placed at the curb for collection crews. No unsightly open piles are dumped in the street. Laborious shoveling is eliminated. It stops those wasteful, costly hauls to the dumps. It spends more time cleaning—the job it's bought to do.

The modern Van Dorn design reduces operating expense. Dead weight hauling is cut to the limit—weighs under 5,000 pounds. It handles easily, turns in a 10 foot circle—extending its service to narrow streets, courts and parks.

Get these modern, efficient, economical features for your street cleaning department. Arrange for a demonstration of the modern Van Dorn Sweeper at your convenience.

THE VAN DORN IRON WORKS COMPANY

2685 EAST 79TH STREET • CLEVELAND, OHIO

The Largest Jail Builders in America

The ULTIMATE in . . . PUBLIC PROPERTY PROTECTION

The best protection you can buy for all public property is a Stewart Iron or Chain Link Wire Fence. Stewart Fences beautify as well as protect, and offer a lifetime of dependable, low-cost service. Before buying investigate the exclusive features of Stewart Fences. It will be to your advantage to do so.

Other Stewart Products for public property: Settees, Steel Folding Chairs, Wire Mesh Partitions, Trash Cans, Flag Poles, Bronze Plaques and many others. When requesting literature, please mention products in which you are interested. Sales and Erection offices in principal cities.

"Fence Builders to America Since 1886"

The Stewart Iron Works Co., Inc.
821 Stewart Block
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Stewart IRON and WIRE FENCES

EXIT Bang and Rattle! of Manhole Covers ●

TAPAX

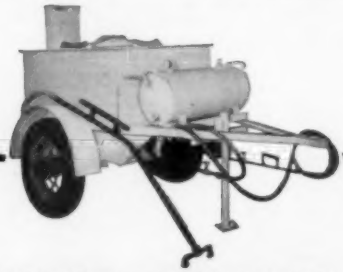
TAPAX is a PATENTED product—U. S. Pat. No. 2,056,050—supplied on steel reels for convenient use.

the ORIGINAL cushion for noisy, worn manhole covers is the quick, easy, lasting, economical solution!

Write for the story of TAPAX and Trial Offer.

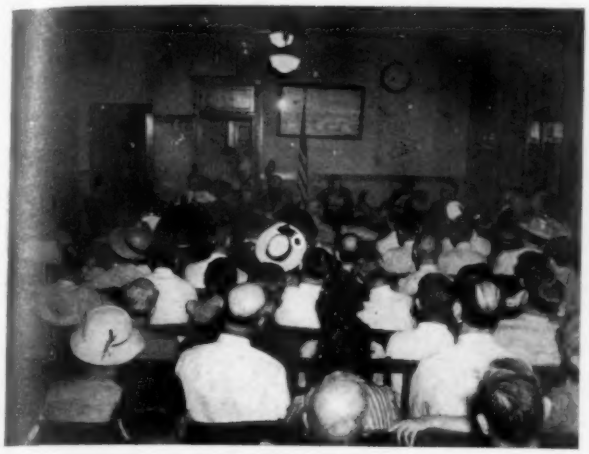
TAPAX MFG. CO., INC.
117 Spencer Place, Mamaroneck, N. Y.

Put TAPAX—sticky side down—on flange. Replace cover.



ASPHALT and TAR KETTLES
Fire Proof—Oil Burning
Hand and Motor driven spray.
Many sizes. Write for catalog.

Elkhart White Mfg. Co. Indiana



Left—More than 200 Tulsa citizens attend the City Commission's open meeting, held at night.
***Right—The Tulsa Police Department** "barbershop quartet" comes into the meeting singing "I've been working on the budget."*

parody on "I've Been Working on the Railroad." The words went like this:

"We've been working on the budget
All the livelong day;
We've been working on the budget
To see about our pay.
Can't you hear the Mayor shouting:
'We need two more mills!'
We've been working on the budget,
Oh, please don't cut our pay!"

Routine business at the meeting included:

Passage of a resolution asking congressional appropriation of $513,000 to complete a flood-control levee on the Arkansas River through Tulsa as a national defense measure.

Discussion of Tulsa's chances to obtain Federal aid on national defense roads under Senate Bill 1840.

Passage of an ordinance extending Tulsa's summer water-sprinkling rate until October, under which Tulsans pay only 10 cents per thousand gallons for all water used in excess of their average winter consumption.

Passage of an amendment making Tulsa ordinance conform with state statutes legalizing sale of 3.2% beer.

Repeal of an ordinance requiring payment of a $50 license fee to act as advertising agent in the distribution of handbills, circulars or pamphlets.

Denial of property-damage claims from two citizens.

Mayor Veale got in two newsy announcements when he received two telegrams from Washington, D. C., during the meeting, and announced that the CAA had decided to take over operation of the control tower at Tulsa municipal airport, and that Tulsa was designated as location for one of the Government recreation centers.

The Mayor declared the night meeting a success—and it will be repeated once a month. The radio station manager declared the broadcast a success—and it, too, will be repeated.

BOB VOLLMER.

Hallowe'en Damage Disappears with City Celebrations

In its June issue THE AMERICAN CITY published (p. 97) a letter from W. V. Pflaum, Chief of Police, Piedmont, Calif., asking to hear from other cities about the way in which they cope with the problems of controlling the juvenile population on Hallowe'en. The July issue listed the publication of the National Recreation Association, "The Community Celebrates Hallowe'en," (p. 115) which describes community Hallowe'en festivities in twenty cities of different sizes, designed to divert excess juvenile energy away from general community wrecking.

Mr. Pflaum has received interesting letters from several cities, other than those listed in the publication of the NRA, telling of successful Hallowe'en programs which have solved this annual problem. The city of Coronado, Calif. (5,500 population), is an illustration of a successful program. I. W. Jordan, Chief of Police, writes of the lively Hallowe'en Festival which that city has put on for the last six years. Representatives of service organizations act as chairman of committees on parade, athletics, decorations, refreshments, music, and judging, etc. The City Council appropriates $150 to cover expenses—a good investment, the city has found, in the elimination of property damage, and in the creation of good-will among the city youth.

Prizes are given for the best costumes worn by adults and children in a parade which marches to the lighted athletic field, where from 700 to 1,000 people usually gather. Here various forms of entertainment are held: amateur acts and quiz contests; a boxing tournament with a well-known popular prize fighter as referee; an energy-consuming tug-of-war, captains of the two sides being high-school boys who would ordinarily be expected to make trouble on Hallowe'en night; and some years a pie-eating contest. In other years, a football contest has been held between the Police Department and the High School; the Police Department, if it lost, treating the boys to as many malted milks as they could hold. Afterwards, street dancing is carried on.

Prior to 1936, organized gangs of 10 to 50 circulated the streets of Coronado, causing all sorts of damage. In 1935, the police could get no control over a mob of 500 which congregated in the business district. For the police, Hallowe'en was a nightmare. Since the inauguration of the Festival, the trouble has been reduced to a minimum: in 1940, there were three telephone complaints compared to over a hundred in former years; no boys or girls were brought in to the police station as against about 65 in 1935.

W. H. Burton, Chief of Police of Imperial, Calif., reports that the city has found a Hallowe'en party with free refreshments for boys and girls costs less than hiring extra police for that night, and has resulted in the practical elimination of Hallowe'en damage. According to other letters sent Mr. Pflaum, and a research report of the Community Hallowe'en Committee of Oakland, Calif., similar Hallowe'en celebrations are held in Crockett, Calif., Elyria, Ohio, Wichita, Kans., and the following California cities—Fairfax, San Rafael, Redding, Vallejo, San Luis Obispo. The American Municipal Association reports that Dalton, Mass., has found a "Feast of Lanterns" contest successful Hallowe'en entertainment. Columbia, Mo., holds a "barnwarming" party on Hallowe'en, preceded by an "Invitation Night," when boys drive in horse-drawn wagons to invite their guests.

STOP the SPEEDER!

ALL TRAFFIC PROBLEMS SIMPLY AND ACCURATELY DETERMINED WITH THE *WELSBACH TRAFFIC ANALYST*

Detects all speeders and at the same time counts all cars—Battery-operated, portable and can be set up in a few minutes at any location. Designed to check either pleasure cars or trucks. Reasonable in price and guaranteed to do the job!

Write for detailed information and price on Analyst illustrated at the right

WELSBACH
TRAFFIC SIGNAL CO.
122 South Michigan Ave. Chicago, Ill.

SAFETY
The citizens of Durham, N. C. (photo) are justly proud of their "Traffic Safety Lighting" achieved with Holophane Refractors. The lighting result exceeds substantially the minimum level specified by the Illuminating Engineering Society. Ask your Street Lighting Manufacturer about Holophane Refractors or write direct to the Street Lighting Division, Holophane Company, Inc., Newark, Ohio.

During October we hope you will remember to mention THE AMERICAN CITY.

Local Government Is News

(*Continued from page 61*)

ages and social backgrounds now find common enjoyment. In another city a botanist from the City Park Department was a leader in organizing the local garden club. City recreation leaders in many cities are helping private groups to supplement the recreational programs of the city. These are merely samples. It is hard to imagine any civic enterprise to which city officials and employees cannot make useful contributions of time and advice."

One of the most important devices, Mr. Wollpert thinks, is the "coordinating council" found especially in the welfare and juvenile delinquency fields. "These councils are composed of representatives of the various agencies, both private and public, that are providing services in the welfare field. The governmental representatives, for example, might include an official of the city welfare department, a county probation officer, and a police officer from the city's crime prevention bureau. Private agencies represented might include charitable institutions, youth organizations, churches, service clubs, and fraternal organizations. These councils are not merely discussion groups or advisory bodies; they play an active role in promoting the exchange of information between agencies, in the assignment of cases to proper agencies, and in preventing duplication of services among the participating agencies. Sometimes the governmental representatives on the council assume active leadership, but these councils are not public agencies. Their purpose is not merely to supplement and support public programs, but to coordinate the many programs, both private and public, that are directed towards the same community objectives. Therein lies their public relations value, for by bringing together private citizens and local officials who are interested in the same problems, these councils help to develop and sustain cooperation and understanding."

Mr. Wollpert would like to see these councils expanded into new fields in which public officials and private citizens explore and develop new ways to improving civic life. By taking City Hall down to the unofficial level, not only will a more integrated cooperative program emerge, but city officials will find new ways for putting their skills and resources to public service.

Why are these suggestions so important for a broad program of public relations at City Hall? What Mr. Wollpert says about the value of citizens' participation goes equally well for the two-way contact which he proposes. "From a public relations viewpoint, the value of citizen—and city official—participation is based on a homely rule of practical psychology—if you want to win a man for your friend, let him do something for you. Add to this rule the well-known fact that people are most interested in what they themselves are doing, and the value of active, as opposed to passive, citizenship becomes readily apparent. Letting citizens—and city officials—help is good public relations, and it is good democracy."

• • • —

Newspaper Series Helps Local Planning for Defense

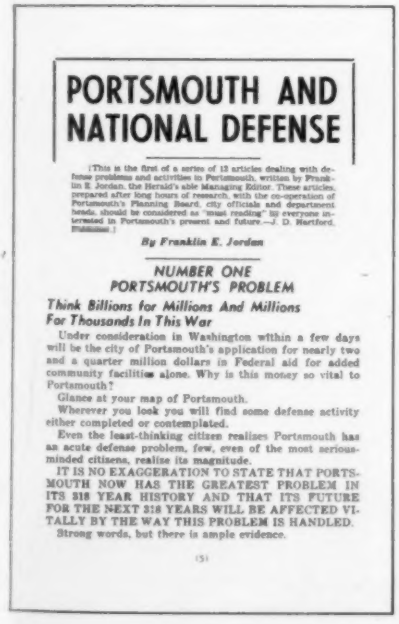
To the Editor of THE AMERICAN CITY:

Portsmouth, N. H., has witnessed in recent weeks an outstanding example of effective newspaper cooperation with a newly established City Planning Board. This took the form of a series of front-page articles on "Portsmouth and National Defense," written by Franklin E. Jordan, Managing Editor of *The Portsmouth Herald*, and published in twelve successive week-day issues of that newspaper. In preparing this series, the author used as a basis, in large part, the Planning Board's studies.

As a result of the work of the City Planning Board and the newspaper in this series of articles, there has been a real awakening on the part of the municipal officials and citizens to the situation which confronts them, and it appears that wiser decisions will be made possible.

The Portsmouth Herald has rendered a further public service by reprinting the twelve articles in a 96-page pamphlet obtainable from that newspaper.

FREDERICK P. CLARK,
Executive Director, New Hampshire State Planning and Development Commission.
Concord, N. H., September 18, 1941.



PORTSMOUTH AND NATIONAL DEFENSE

[This is the first of a series of 12 articles dealing with defense problems and activities in Portsmouth, written by Franklin E. Jordan, the Herald's able Managing Editor. These articles, prepared after long hours of research, with the co-operation of Portsmouth's Planning Board, city officials and department heads, should be considered as "must reading" by everyone interested in Portsmouth's present and future.—J. D. Hartford, Publisher.]

By Franklin E. Jordan

NUMBER ONE
PORTSMOUTH'S PROBLEM

Think Billions for Millions And Millions For Thousands In This War

Under consideration in Washington within a few days will be the city of Portsmouth's application for nearly two and a quarter million dollars in Federal aid for added community facilities alone. Why is this money so vital to Portsmouth?

Glance at your map of Portsmouth.

Wherever you look you will find some defense activity either completed or contemplated.

Even the least-thinking citizen realizes Portsmouth has an acute defense problem, few, even of the most serious-minded citizens, realize its magnitude.

IT IS NO EXAGGERATION TO STATE THAT PORTSMOUTH NOW HAS THE GREATEST PROBLEM IN ITS 318 YEAR HISTORY AND THAT ITS FUTURE FOR THE NEXT 318 YEARS WILL BE AFFECTED VITALLY BY THE WAY THIS PROBLEM IS HANDLED.

Strong words, but there is ample evidence.

(5)

NUMBER FOUR
OUR UTILITIES: WATER

Portsmouth's Water Problem

Supply	Gals. per Day	Cost*
1. Present system	2,500,000	$670,000
2. New system ready in 60 days	700,000	233,000
3. PBA system 800 homes at Heights	220,000	150,000*
4. Winnicutt river project, proposed	3,000,000	520,000
5. Improved distribution system this year		17,000
6. Proposed improved distribution system		241,000
Totals	6,520,000**	$1,831,000

*Built and paid for by Federal government.
**This means a gallonage on the minimum 4,700,000 gallons per day that might be needed or 180,000 gallons but less, the new 700,000 gallon system and the Winnicutt river project are expected to provide eighteen more than the minimum under forced pumping if needed.

Like The Old Riddle Of How Much Can A Man Drink: It All Depends

Comrade, never take a bath. Don't water your lawns and don't wash the dog.

Warnings to conserve our water supply for the next 60 days have accented the acute situation that national defense has caused in Portsmouth's principal utility—water.

Portsmouth had a water problem long before FDR declared an emergency.

In fact, six years ago, the National Board of Fire underwriters recommended that the available supply be doubled from 2,500,000 gallons a day to 5,000,000 or an average of 300 gallons a day per person.

(22)

NUMBER EIGHT
OUR FIRE PROTECTION

Portsmouth Fire Protection

Ordered—85-foot aerial ladder	$16,500
Recommended:	
Plains sub-fire station and equipment	24,000
Atlantic Heights sub-fire station	24,000
10 new call boxes	$1,500
6 English style portable pumps	2,500
45 new hydrants	$4,500
	$73,000

20 hydrants at PBA at Atlantic Heights now in by Federal government.

Utilities, Communications, Traffic, Police And Inspections Play An Important Part

"In the principal mercantile district severe fires are probable and there is considerable possibility of their spreading to involve a large portion of the district. Oil storage plants form a distinct hazard to surrounding property and the waterfront. In the residential section severe fires are probable."

—From the National Board of Fire Underwriters, Portsmouth Report, 1936.

In the past five years many conditions that resulted in this report have been improved. Now National Defense has brought new problems to this municipal service of guarding 17,000 persons in the city, 8,000 in the suburbs and $30,000,000 in property.

Surprisingly, only about $75,000 is needed to meet all urgent needs of the Fire department, including two new sub-fire stations in the two defense housing areas.

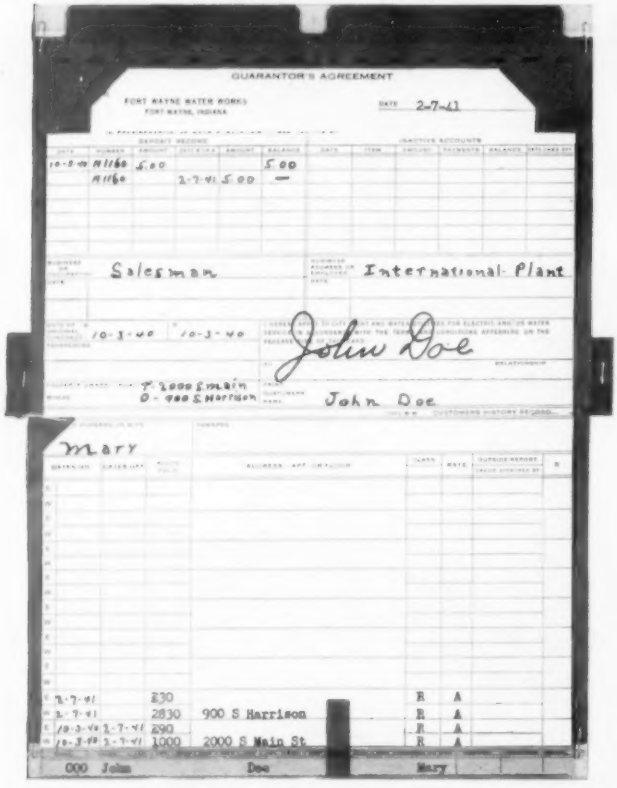
Ordinarily, when you think of fire protection, you think of engines, ladders and firemen.

This is only a small part of it. Five other city functions,

(16)

Three Pages from THE PORTSMOUTH HERALD *Reprint*

A SIMPLE WAY TO CUT YOUR BAD DEBT LOSSES



● CITY OF FORT WAYNE, ELECTRIC & WATER DEPARTMENT Kardex Customer History Record.—Above are shown two 6-inch x 4-inch Kardex pockets—front and back. The front pocket contains the fold-over card—the flap is up. Its face provides the Application for Service and an 8-year record of Light, Water and Sewage payments. Signals in the visible margin indicate, by their color, such facts as—"deposit", "delinquent", "disconnected."

The back pocket maintains the 5-inch x 3-inch cards such as "Guarantors Agreement" etc.

Every Municipal Utility Company wants to stop prohibitive bad debt losses, improve customer relations and ease the burden of work and worry loaded upon executives and personnel. Now, there's a new, easy way to accomplish all three objectives:

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CUSTOMER HISTORY RECORD

Centralized within a single Kardex Customer History Record are all the essential facts which contribute to a reduction of bad debt losses, better customer relations and savings in executive and clerical time. Combined within this single Kardex record are:

1. Application for service
2. Alphabetic index of customers
3. Deposit ledger
4. Guarantors record
5. Record of accounts guaranteed
6. Inactive account ledger record
7. Bad debt record
8. Copy of deposit receipt
9. Collection record
10. Credit information

The Kardex Customer History Record establishes collection effort on a selective basis—concentrating attention only on delinquent accounts. It speeds customer service by centralizing the source of information. It relieves executives and clerks from time-consuming searches in several files for information pertaining to a single account.

OUR RESPONSIBILITY

You can install your Kardex Customer History Record without headaches, overtime or interrupted normal routines by letting us assume the entire installation. We'll do the whole job—typing, verifying and filing—and turn over to you a new system all ready to deliver benefits-plus!

WRITE TODAY

Write today for all the facts on the triple savings of a Kardex Customer History Record. No cost, of course.

BE SURE TO SEE THE ARTICLE IN THIS ISSUE OF THE AMERICAN CITY FEATURING THE FORT WAYNE KARDEX CUSTOMER HISTORY RECORD!

UTILITIES DIVISION

REMINGTON RAND INC.

BUFFALO, NEW YORK • BRANCHES IN ALL PRINCIPAL CITIES

Huge Slum Demolition for Plant Expansion

By B. J. Hovde

Administrator, Housing Authority of the City of Pittsburgh, Pa.

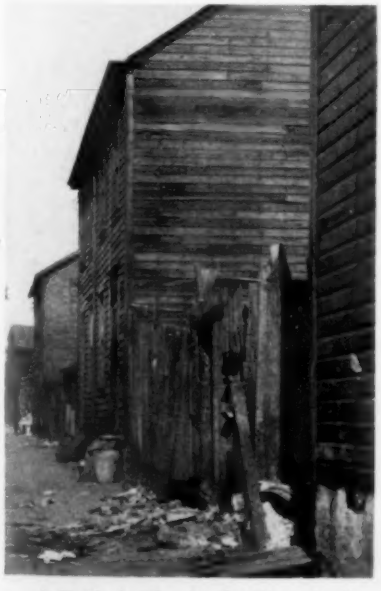
• • • —

TO make way for $110,000,000 worth of new plants for Carnegie-Illinois Steel Co., to be used for defense production, 2,100 homes housing almost 9,000 persons are being demolished in areas, largely substandard, in Homestead and Duquesne outside Pittsburgh. The accompanying illustrations show homes typical of those being wrecked.

Clearing the areas and resettling these thousands of persons in new homes is a tremendous undertaking, involving radical adjustments both for the community and the individual families. Five radio broadcasts, 50 or 60 spot announcements, and items in the papers requesting information on vacancies, turned up only three furnished rooms in those sections of Homestead and Duquesne which are not being cleared. This means that most of the displaced families will have to be moved from the communities in which they have lived, on the average for 25 years, to be dispersed to all parts of the Pittsburgh metropolitan area. Friends will be separated, church and club groups broken up, established business clientele scattered. Of all the areas in the country in which groups of homes are being torn down to make space for defense plants, operations in this one are by far the largest.

PHOTO BY A. W. MCKINNEY, MEADOW GOLD DAIRIES, INC., PITTSBURGH; COURTESY OF BUSINESS WEEK

Airplane View of Homestead, Pa.—Demolition Area Outlined in White



A Typical Alley in the Homestead Demolition Area

Finding New Homes for Displaced Families

Finding new homes for the displaced families is particularly difficult now because of the extreme housing shortage existing all over the Pittsburgh region. In every community in Allegheny County vacancies number less than 1 per cent of total dwelling units, and additional workers are coming into the area by the thousands. The Housing Authority of the City of Pittsburgh, the Allegheny County Housing Authority, and Homes Registration Offices set up by the Division of Defense Housing Coordination, are cooperating in carrying out this task.

The Homes Registration Offices, whose activities are confined largely to those families having no member working in a defense industry, are listing vacancies in the area—single rooms, apartments, and houses. For defense families, which number about 80 per cent of the total, efforts are being made to provide dwelling units in public housing projects, many of which are now being rushed through construction. The Pittsburgh Housing Authority has set aside for these families 450 dwellings in its completed Terrace Village Project.* Units are also being opened beginning September 4 in several of the Allegheny County Housing Authority projects located in Turtle Creek, Mifflin Township, North Braddock, and Munhall—all of which undertakings are within easy traveling distance of the defense mills.

The relocation of the first group of families began during the last of August, the first eviction notices sent out by Carnegie-Illinois having expired between August 20 and September 1. It was expected that beginning with the first week of September, 20 families would be evicted each day. The goal is to have the area cleared by December 1.

* See airplane photograph of this project on the front cover of THE AMERICAN CITY for July, 1941.

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Zoning Ordinance—Amendment—Invalid Ordinance, Repeal—Reference to Planning Commission and Report—Petitions of Property Owners

MISSOURI.—*State ex rel Luechtenfeld v. Arnold*, Building Commissioner, St. Louis Court of Appeals, April 8, 1941, reported in 149 S. W. 2d, 384.—This is a proceeding to test the validity of a provision of the zoning ordinance of the city of Richmond Heights, in the county of St. Louis. The ordinance known as No. 147 zoned the area in question for one-family residential use. It contained a clause stating that proposed changes in the ordinance should first be submitted to the City Planning Commission, or to a special committee or commission appointed by the mayor and council for that purpose, for recommendation and report.

This ordinance was amended by an ordinance providing that two-family residences might be built in this area. That ordinance was passed without reference to, or recommendation or report from, the City Planning Commission or any committee with like duties; and, in fact, no City Planning Commission or Zoning Commission was ever appointed. For this reason the amending ordinance was void.

In 1925 the state passed a zoning enabling act. No pretense of any compliance with this enabling act was made in the passage of this amendment.

Both the provision for reference in this ordinance No. 147, and the state enabling act, were a limitation on legislative authority of the City Council to enact ordinances for changes in the regulations, restrictions and boundaries of zoning districts. The amendment was therefore void.

It has been ruled in Missouri that the enabling act contemplates the same useful service and intelligent consideration of an amendment to a zoning ordinance as is required in the preparation and enactment of an original zoning ordinance.

Subsequently an ordinance was passed repealing the invalid amendatory act, and restoring the previous restriction of the district to one-family residential use. Of this act it cannot be said that reference to the City Planning Commission, or the same consideration as in the preparation and enactment of such ordinance as in that of the former ordinance, is necessary. The only purpose of that ordinance was to eliminate from the city ordinance the invalid act of adopting the amendatory ordinance, and there would therefore be nothing for a City Planning Commission to recommend or report, because no change was made or sought to be made in regulations, restrictions, and boundaries as to property classification from that contained in the original ordinance.

The fact that a permit was issued to another property owner to erect a duplex dwelling on his property in this district has no bearing on the rights of the applicant even though the city officers may have wrongfully issued this permit, for their act in so doing could not have the effect of invalidating an ordinance of the city.

The adoption of the ordinance restoring the provision limiting the property in the district to one-family use was not an arbitrary and unreasonable action on the part of the City Council. Over a hundred property owners petitioned the City Council to effectuate that purpose.

The property owner is not therefore entitled to a permit for the construction of one-family houses in the district in question.

EDITOR'S NOTE.—Provisions requiring reference by the legislative body of a local government of changes in the official map (or instrument of more or less similar import) to the local planning commission, before final action by the legislative body thereon; and providing that without the approval of the commission no such change shall be made by the legislative body except by some percentage in excess of a majority vote, are growing in favor in this country. This procedure is now often required with regard to changes in the zoning ordinance, and changes not in conformity with the master plan of the community. A notable example of this tendency will be found in the recently adopted planning amendments to the charter of the city of New York, and related sections of the charter and the administration code. The purpose of these provisions in modern legislation is to make sure that before acting upon planning matters the legislative body shall receive the best available technical advice, and to secure in planning matters a measure of continuity and stability not easily secured in other ways. Such legislation has, so far, been approved by the courts.*

In line with these decisions is the case reported above. Like some of the others, it does not require of the legislative body a more than majority vote, but in making it mandatory that reference to the planning commission and a report from it shall precede final action, its object is nevertheless to make sure that technical advice shall be received prior to the passage of such measures, and to obtain a lessened but nevertheless desirable stability in planning legislation.

It should be noted in this case that the requirement for reference or report is made in an ordinance passed by the legislative body itself. It is, however, universally recognized that a legislative body cannot by its own action find its successors. The mere passage of a measure not complying with this requisite, would therefore seem to be, *pro tanto*, a repeal of it.

The usual method of making such a restriction valid is to place it in state legislation. Home rule powers, given local governments, sometimes secure to a degree the same results. The restrictions in the New York City charter, mentioned above, were made in a law amending the charter of the city and passed by the Legislature of the state. To some extent perhaps the same results could now be attained in New York City by local law or other local action, with relation to which popular referenda are often provided. And the same is no doubt true under other home rule measures.

* *State ex rel Bateman v. Zachritz*, 135 Ohio State Reports 580, reported in these Notes for November, 1939. See also *Whittemore v. Town Clerk of Falmouth*, 12 N. E. 2d, 187, reported in these Notes for April, 1938, and *Hopkins v. MacCulloch*, 95 P. 2d 930, reported in these Notes for February, 1940.

Board of Appeals — Non-Conforming Use — Extension of Proposed Building into More Restricted District

NEW YORK.—*In re Jeson Co., Inc.*, Supreme Court, Queens County, reported in *New York Law Journal*, July 10, 1941, page 85.—The facts of this case do not appear fully in the opinion, but the legal principles involved are stated there as follows:

Section 7 of the New York City Zoning Resolution formerly read in part, "*Use District Exceptions.*—The Board [of Standards and Appeals] . . . may in appropriate cases . . . subject to appropriate conditions and safeguards, determine and vary the application of the use district regulations herein established in harmony with their general purpose and interest as follows. . . . (c) Permit the extension of an existing or proposed building into a more restricted district under such conditions as will safeguard the character of the more restricted district."

In interpreting this section the Court in *Matter of Reed* v. *Board of Standards and Appeals* (255 N. Y. 126) said:

"Under Section 7 (c) the element of public health, safety and general welfare is not emphasized as in Section 21 [variances for unnecessary hardships and practical difficulties] although it may well be taken into consideration. The question of hardship to the individual owner becomes a more material element in the determination of the application. May he be allowed under such conditions as will safeguard the character of the more restricted district, to extend his 'existing or proposed building' into a more restricted district? The variation may be made to meet the specific case in order to enable the owner to make a reasonable and profitable use of his property if it can be done without violence to the general zon-

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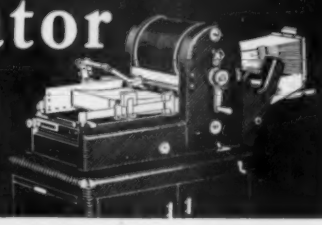

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ing plan and without causing substantial inconvenience to the immediate neighborhood, although the applicant had no right to insist upon a decision in his favor."

When this case came up before this Court previously (see *New York Law Journal*, July 23, 1940), the decision was rendered upon the old Section 7 c. At that time, in deciding against the applicant the Court said: "I am constrained to conclude that while the Board's action is not arbitrary, capricious or unreasonable, its determination cannot be sustained under Section 21 [variance for unnecessary hardships and practical difficulties] upon the proofs before me; nor in my opinion can it be sustained under Section 7 (c) as it existed at the time the Board rendered its determination herein. Since then, that section has been amended, so as to allow such an extension with relation to a non-conforming use; and the Court sees no reason to question the constitutionality of such an extension, the incidental use being, in this case, not (as in matter of *Kaltenbaum v. Board of Standards and Appeals*, 274 N. Y. 34) in connection with an illegal, but a legal, vested non-conforming use.

Moreover, in this case permission was given to extend the gasoline service station not into a more restricted district, but into a district equally restricted.

Nor does the Court find that the Board of Estimate was powerless to delegate to the Board of Standards and Appeals the authority contained in Section 7 c, as amended; the function of the Board being not to vary the Zoning Resolution, but to determine and vary the *application* of that regulation.

EDITOR'S NOTE.—Section 7 of the New York City Zoning Resolution is an instance of a grant of original as distinguished from appellate jurisdiction to the Board of Appeals. With regard to this distinction see Bassett, Zoning, p. 125.

The Municipal Bond Market

Recent sales of new issues from the September numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$175,000	Quincy, Mass., Tax Refunding Loan	.50	1-5 Ser.	.48
100,000	Everett, Mass., Macadam Pavement	.75	1-5 Ser.	.56
323,000	Rochester, N. Y., Pavement Reconstruction	.90	4 Avg.	.83
338,000	Allentown, Pa., School, Refunding	1	5.5 Avg.	.90
440,000	Summit Co., Ohio, Refunding	1.25	5.85 Avg.	1.08
210,000	Marshall, Mo., Electric Plant, General Obligation	1.16	3-5-5.33 O.—A.	1.106
218,000	Clay Co., Iowa, Primary Road	1.25	8.33 Avg.	1.12
600,000	Amherst, Mass., Water	1.25	1-30 Ser.	1.21
190,000	Erie, Pa., Funding and Improvement	1.25	8.5 Avg.	1.23
150,000	McLennan Co., Texas, Airport	1.25	4-5-7.5 O.—A.	1.23
100,000	East Aurora, N. Y., Sewer and Sewage-Disposal Plant	1.40	9.5 Avg.	1.38
125,000	Savannah, Ga., National Defense	2	19.85 Avg.	1.65
300,000	Newport News, Va., Public Improvement	1.5	8.25 Avg.	1.42
225,000	Rockville Centre, N. Y., Electric Light System	1.5	11 Avg.	1.45
312,000	Kearny, N. J., General Improvement and Improvement	1.70	11 Avg.	1.64
1,425,000	Tacoma, Wash., Light and Power Revnue	3	5.33 Avg.	1.7488
130,000	Spencer, Iowa, Municipal Heating System Revenue	3.5	4.5-10.5 O.—A.	3.5

City Manager Appointments

Theodore R. Bartlett, formerly with the State Highway Department, was appointed Town Manager of Ashland, Maine, on August 7, succeeding Robert W. Palmer, who recently became Manager of Ft. Fairfield.

A. P. Hancock, City Manager of Kerrville, Texas, since 1933, has been appointed to succeed H. R. Smith as City Manager of Amarillo, Texas.

Fred Kaerner is serving as Acting City Manager of Coronado, Calif., during the military leave of Captain M. W. Reed, who is in the USAC at Moffett Field, Calif.

Louis F. Kendall, former Village Trustee, was selected City Manager of Saranac Lake, N. Y., on July 28, to succeed Millar S. Johnson.

Waldo Myers, Assistant Manager for the past year, has succeeded Charles J. Mackey as City Manager of West Liberty, Iowa, effective September 1.

J. N. Roberson, City Attorney, will serve as City Manager of El Reno, Okla., while John Oliver Hall is in the Army (now at Fort Sill, Okla.).

H. B. Prichard was selected Town Managed of Crewe, Va., on August 19, to succeed H. H. McCanna, Manager since 1939, resigned to become Assistant Director of the Richmond, Va., Housing Authority.

A. B. Sansbury, Superintendent of Transportation of Wayne County Schools, was appointed City Manager of Goldsboro, N. C., effective September 1, to succeed Zeno G. Hollowell, Manager since 1926.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

City Managers to Meet at Hollywood, Florida

THE effect of the national defense on cities will be the major topic of discussion at the 28th annual conference of the International City Managers' Association, to be held in Hollywood, Florida, November 23-27. Among the defense subjects that will occupy one entire day of the meeting are: organization for defense; priorities for equipment and supplies; effect on municipal personnel and finance; dislocations caused by shifting from normal to war industries; and post-defense planning.

Other features of the program will include a half-day on unsolved administrative problems, a session on management techniques discussed by a panel composed of the older city managers, and matters pertaining to the city manager profession will be discussed at the annual business meeting of the Association.

With more than 100 city managers from 30 states already indicating their plans on attending, there is every indication that this conference will be the largest in recent years.

A committee named by J. B. Mobley, Jr., City Manager, Gainesville, Florida, and President of the Florida Managers' Group, is charged with local arrangements. They are: Forrest Blackwell, City Manager, Hollywood, Chairman; M. C. Baker, Lake Worth; A. B. Curry, Coral Gables; L. L. Lee, Miami; L. Trevette Lockwood, Palm Beach; C. L. McCall, Miami Shores; Francis B. McGarry, West Palm Beach; J. H. Philpott, Fort Lauderdale; and Claude A. Renshaw, Miami Beach. Roy S. Braden, Manager of Greenbelt, Md., is President of the Association.

South Garden, Hollywood Beach Hotel

The vast Hollywood Beach Hotel is completing plans for the entertainment of the delegates and their families. Fishing and sight-seeing excursions, both into the Everglades and on the ocean, have been arranged, along with picnics, golf tournaments, special evening affairs, trips to Miami, Miami Beach, Ft. Lauderdale and other surrounding towns and other sections of the state.

An eighth of a mile in length, with a lower lobby complete with shops of all descriptions, 630 rooms, a main dining room seating 1,000, the Great Lounge capable of accommodating 1,200, the breeze-swept Beachwalk, where luncheon and breakfast are served, the famous Bamboo Room, where excellent dance orchestras and entertainment are offered and even its own motion picture theater, the Hollywood Beach Hotel offers exceptional facilities for a successful and enjoyable convention.

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National defense imposes heavier expenses and responsibilities on local governments, due to expanding activities and industries. Costs of police, fire, highway, health and other departments are increasing faster than tax revenues can take care of them. The result is that local governments are obliged to tighten up their tax collection processes with more efficient billing and accounting methods; to adopt a budgetary control which gives immediate access to costs and commitments.

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Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.
Charles S. Rhyne, Executive Director, and John A. McIntire, Consultant

Administrative Law—Council Investigation—Contempt

An investigation by a sub-committee of a city council stands on the same footing as a council investigation, and witnesses may be compelled to testify. The President of the Municipal Civil Service Commission called on to appear is entitled to such privileges as are extended by law to witnesses in judicial proceedings, but to no greater privileges. Where the President of the Civil Service Commission was in contempt for refusal to appear at a stated time, the furnishing of the required information by him at a later time does not purge him of the contempt charge. *In re Smith*, 29 N. Y. S. (2d) 116 (N. Y. 1941).

Airports—Eminent Domain—Public Purpose

Under legislative authority to spend funds for acquisition of an airport, a city may use its power of eminent domain to take private property for that purpose, since an airport is a public use. *Burnham* v. *Mayor and Aldermen of Beverly, Mass.* (Sup. Jud. Ct., June 24, 1941).

Airports—Governmental Function—Tort Liability

A city is not liable for damage or destruction by fire of an airplane in a privately leased hangar at the municipal airport, since the operation of the airport by a city is a governmental function. *Abbott* v. *City of Des Moines*, 298 N. W. 649 (Iowa 1941).

Civil Liberties—Religious Freedom—Assault and Battery

A person, not the aggressor, who is beaten in a personal fight resulting from his statements regarding religion is not guilty of assault and battery, since he acted in self-defense; nor is he violating any other constitutional municipal ordinance, since a state or municipality may not wholly debar the right to preach or disseminate religious views. *City of Gaffney* v. *Putnam*, 15 S. E. (2d) 130 (S. C. 1941).

Civil Service—Dismissal—Procedure

While a civil service commission cannot both prosecute and try an employee for misconduct the result of which will be dismissal, where the action is started by the fire chief, the commission acts properly in conducting the hearing after due notice to the employee fireman. The fact that he does not take advantage of his privilege of appearing at the hearing is immaterial. *Misbach* v. *Civil Service Commission of Cedar Rapids*, 297 N. W. 284 (Iowa 1941).

Contracts—Governmental Functions—Board Cannot Bind Successors

Contracting for volunteer fire service is a governmental act, and a local board cannot bind its successors to pay for same. Even where such a contract is valid, assumpsit and not mandamus is the proper remedy. *Commonwealth* v. *Bartol*, 20 A. (2d) 313 (Pa. 1941).

Delegation—Permits—Lack of Standard to Guide Discretion

Refusing to pass directly on the validity of a barber shop hours ordinance, but expressing doubt as to its relation to health, the Court invalidates the city of Scranton Barber Ordinance because of improper delegation in that it permits the Department of Public Safety to issue permits for operation during restricted hours without setting up any standard to contract the issuance of such permits. *Saccone* v. *Scranton*, 20 A. (2d) 256 (Pa. 1941).

Employer—Contract to Waive Benefit of Statute Temporarily Held Valid

Where it appeared that compliance with the state law regulating hours and wages of firemen would require reduction in the size of the force of the city of Fort Worth because of lack of funds, a contract with the employees to waive the benefits of the statute for the fiscal year or until the validity of the act is determined, is a valid contract supported by consideration and not against public policy. *City of Fort Worth* v. *Morrison*, 151 S. W. (2d) 300 (Texas 1941).

Firemen—Local and State Affairs

A state statute requiring cities not using eight-hour shift system for firemen to divide the force into a two-platoon system with prescribed hours on and off duty, relates to state affairs and does not interfere with constitutional local home rule. The State Director of Industrial Relations has authority to enforce the statute by mandamus against the local fire department chief. *State ex rel Strain, Director of Dept. of Industrial Relations* v. *Houston, Fire Chief of Cincinnati*, 34 N. E. (2d) 219 (Ohio, 1941).

Firemen—Hours of Duty—State and Local Affairs

An ordinance setting up a "72-hour" plan for duty of firemen in the city of Lynn is in conflict wtih the state statute in force in the city establishing a "platoon system" and a "84-hour plan." The ordinance is therefore void. *Hurley* v. *City of Lynn, Sampson* v. *Cole*, 34 N. E. (2d) 520 (Mass. 1941).

Food—Local Regulation of Sale of Eggs in Face of State Law

In view of city charter authority to make such a regulation, the Minneapolis ordinance regulating the purchase and sale of eggs is valid, and the state law on the same subject did not withdraw power from the city in regard thereto. A matter may be an offense against both the state and the municipality if the local law is not inconsistent with the statute. *State* v. *Houston*, 298 N. W. 358 (Minn. 1941).

Governmental and Proprietary Function —Subjection to State Taxation

A city's public utility is operated in its proprietary capacity and is therefore subject to state excise tax. Income from admission to swimming pools and golf courses is not related to a project operated for profit and therefore is not subject to state taxation. Fees received from operation of parking meters are fees incident to a regulatory measure and are therefore not revenue subject to state excise taxes. *City of Phoenix* v. *Moore*, 113 P. (2d) 935 (Ariz. 1941).

Milk Containers—Chicago Exclusion of "Paper Bottles" Invalid

In view of the fact that state law permits the use of "single service" or paper milk containers, this establishes the policy of the state, and the Chicago ordinance requiring that milk be sold only in "standard glass bottles" is invalid as conflicting with state law. *Fieldsrest Dairies, Inc.* v. *City of Chicago*, C. C. A. 7, Aug. 4, 1941.

Nuisance—Amusement Parks

An amusement park operated by a city for profit is a proprietary activity, and it is a question of fact which must be submitted to a jury whether the light from floodlights and the noise from an amplifying system and other noises incident to the operation of such a part constitute a nuisance. *Blake* v. *City of Madison*, 296 N. W. 422 (Wis. 1941).

Taxation—Exemptions—Property Not Actually Used by Church

Part of a lot not actually and presently used by a church but intended for future use and presently used for parking of cars by church members is not entitled to exemption from taxation. *First Baptist Church of Pittsburgh* v. *City of Pittsburgh*, 20 A. (2d) 209 (Pa., 1941).

Taxes—Liens—Priority—Federal-State and City Relations

Where no insolvency is involved, liens of the Federal Government and liens of states or cities are on an equal basis so that priority will be awarded on the principle "first in time, first in right." *United States* v. *City of Greenville*, 118 F. (2d) 963 C. C. A. 4th, S. C. 1941).

Taxes—Refund of City Taxes by County Collector

A city may properly empower a county to perform its functions such as collecting taxes. When it does so, the statute applying to the county officer's function governs and permits refund of the city's improperly collected taxes without making the city a party to the procedure. *Los Angeles County* v. *Superior Court in and for Los Angeles County*, 112 P. (2d) 10 (Cal. 1941).

Theaters—Buildings—Administrative Action

An open-air movie located in a yard enclosed by a fence and having seats attached to supports set in the ground between the projection booth and the screen, is not a "building" within a city building code. An administrative officer upon sufficient reason may review a decision and change his action thereon. In this case the officer had classed the movie as a building and refused the permit on the advice of the city's legal advisor. On the determination by the superior court that the theater was not a building, he reviewed his action and granted the permit, which action the Court sustains. *Middlesex Theatre, Inc.* v. *Commissioner of Police*, 20 A. (2d) 412 (Conn. 1941).

Tort Liability—Defective Sidewalk—Constructive Notice of Condition

In a suit by an 85-year-old woman for injury resulting from a fall on the sidewalk caused by a defect in the curbing covered by leaves and therefore not readily seen, proof that the condition had existed for about two months and that other persons had fallen at the same spot was sufficient to charge the city with constructive notice of the defect. *Parker* v. *City of New Orleans*, 1 So. (2d) 123 (La. App. 1941).

Tort Liability—Governmental Functions—Nuisance

The duty imposed on an Ohio city to keep its streets free from nuisances is an exception to the rule of non-liability for negligence in discharge of a government function. A petition alleging facts constituting a nuisance therefore is not demurrable on the ground that the city was engaged in a governmental function. *Liesman* v. *City of Brookville*, 34 N. E. (2d) 580 (Ohio Appeals 1940).

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Water Supply and Sewerage

Sanitary Engineering.—By Harry G. Payrow, Assistant Professor of Sanitary Engineering, Lehigh University, Bethlehem, Pa. First edition. International Textbook Co., Scranton, Pa. 1941. 483 *pp.* $4.00.

This new volume is a rather general coverage of the field of sanitary engineering, including water supply, sewerage, and water and sewage treatment, as well as the handling of trade wastes. The author states frankly that he has endeavored to prepare a book for civil and chemical engineers which will also serve as an introductory course for sanitary engineering students. It should serve as a very good reference volume for city engineers because of its breadth of coverage and the number of tables and diagrams, as well as test problems.

Water Purification

Active Carbon—The Modern Purifier.—By John W. Hassler. Industrial Chemical Sales Division, West Virginia Pulp and Paper Co., 230 Park Ave., New York. Fourth Edition, 1941. 159 *pp.*

This book is concerned primarily with the so-called decolorizing type of active carbon. Five divisions discuss: the general nature and uses of active carbon; its application to various products; certain principles concerning active carbon of interest to the research chemist; and methods of evaluation. A fifth division contains a bibliography on the subject.

Sewage-Treatment Study

Comparative Study of Performance of the Municipal Sewage Treatment Plants Incorporating Application of Chemicals at Wilmington and Lebanon, Ohio.—R. H. Markwith, M. D., Director of Health, Columbus, Ohio. 1941. 41 *pp.*

Sewage-treatment plants at Wilmington and Lebanon, Ohio, both incorporate the application of chemicals as an adjunct to primary treatment. Wilmington uses chemicals for normal coagulation; Lebanon uses chemicals employing the Lewis Process as prescribed by the Huffman-Wolfe Company, of Columbus. For this study of the relative performance of the two plants, samples were composited for analysis in the central laboratory at Columbus, Ohio, catch samples were collected in the field, and data relative to plant operation were gathered.

Sewage and Waste

Report Upon the Collection, Treatment and Disposal of Sewage and Industrial Wastes of the East Bay Cities, California, to the Mayor and Council Representing the City of Berkeley as the Sponsoring Agent for the Seven Cooperating Cities, Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, Richmond.—By the Board of Consulting Engineers. 1941. 653 pp., *multi.*

Detailed report of investigations and analyses of all conditions affecting the problem of sewage disposal in the East Bay cities of California, with recommendations for schemes that should be adopted by these cities for disposal of their sewage.

Refuse Collection

Financing Refuse Collection Operations.—American Public Works Association, 1313 *E. 60th St., Chicago, Ill.* 1941. 34 *pp.* 50c.

This is Chapter XII of the projected volume "Refuse Collection Practice." Based on the experience of cities throughout the country, it discusses the advantages and disadvantages of the principal methods of financing refuse collection operations: general property taxation; separate property taxation; service charges or fees; can-rental charges; special assessments; and grants-in-aid.

The Municipal Index

Municipal Index and Atlas, 1941-42.—*The American Magazine Corporation, 470 Fourth Ave., New York. Seventeenth Annual Edition.* 649 *pp.* $5.00.

What has been happening during the past year in the fields of public works, public safety, recreation and finance? What new trends and improvements in municipal equipment and procedure have been developing in American cities? These are questions to which every alert public official wants to know the answers. They are contained in this yearbook and reference annual, condensed for busy readers.

The ten sections of the volume cover: Maps and City Lists Directories of Municipal Officials; Streets and Highways—Construction and Maintenance; Water Supply and Purification; Sewage and Garbage Collection and Disposal; Lighting and Power; Public Safety—Traffic Control—Fire and Police; Parks, Playgrounds, Swimming Pools, Airports; Business Machines; Publications—Legal Decisions. The section on Streets and Highways opens with an article of significant interest on "Controlling Surface Cracks by Improved Base Design," written by a specialist in the field who has made a long study of the subject. It is followed by an account of the new electric-operated asphalt plant at St. Louis, which is paying for itself in savings. Water-works officials will be particularly interested in a thorough discussion of an important phase of metering, "Systematized Meter Repairs—A Water Department Necessity."

A comprehensive coverage of street-lighting costs gives figures, individually and by population groups, for 1,036 cities. In the Lighting and Power section also, the subject of electric distribution, both underground and overhead, is taken up for the first time. An article in the section on Public Safety presents answers to objections that have been made to parking meters.

The almost threefold increase in the size of this year's section on Business Machines over that of last year reflects the mounting interest in modern municipal accounting methods. Among other articles, three of particular interest are those on accounting, billing and record-keeping for municipal utilities tax accounting for small cities; and an inclusive list of commercial literature on modern municipal office practice. Readers will welcome a short "primer" on the highly complicated subject of fire-insurance rates on municipal properties.

A bibliography of 1940-41 publications in the municipal government field is included in the yearbook. Articles appearing in THE AMERICAN CITY on the subject of each section of the yearbook are listed, and legal decisions reviewed in the magazine are indexed.

Municipally Owned Utilities

Results of Municipal Electric Systems, 1941.—*Burns & McDonnell Engineering Co., Consulting Engineers, Kansas City, Mo. Seventh Edition,* 1941. 425 *pp.* $5.00.

Data on 1940-1941 earnings, output, rates, revenues, valuation, type of plant and management, and other factors in 756 municipally owned and operated electric systems in the country. Summary graphs and charts indicate increasing use and decreasing cost of electricity among these plants.

Business Machines

Accounting and Budgetary Systems Installed in Kansas City, Missouri, 1940-41.—*Prepared by the Office of the City Manager.* 1941. 10 *pp., multi.*

During the last year Kansas City has installed three accounting systems: a general and budgetary accounting system; a tax-accounting system; and a water-accounting system. These are here described, with photographs and forms used and results of their installation.

Electric Distribution Systems

Electric Distribution Fundamentals.—By Frank Sanford, E.E. McGraw-Hill Book Co., New York. 1940. *viii* + 242 *pp.* $2.50 *from* THE AMERICAN CITY.

In relatively non-technical language this compact volume sets forth the practical aspects of planning, constructing and operating electric distribution systems, from the substation to the customer's meter, with incidental discussion of the related generation, transmission and inside wiring, and of the historical development of electricity. The author is distribution engineer for the Cincinnati Gas & Electric Co., and has written primarily for the man on the job, whether with a private or a municipal utility; his work can also give students, inspectors, administrators and others an understanding of the electric system that spreads its web throughout every city.

H. M. OLMSTED.

Medical Defense

Emergency Medical Service for Civilian Defense.—Bulletin No. 1. Medical Division, United States Office of Civilian Defense, Washington, D. C. 1941. 9 *pp.*

The essentials of an Emergency Medical Service to prevent or alleviate possible medical and public health hazards to civilian population are outlined in this bulletin. The organization of Emergency Medical Field Units is presented with an analysis of the functions of its composite units, and possible future expansion of hospital and nursing facilities is recommended.

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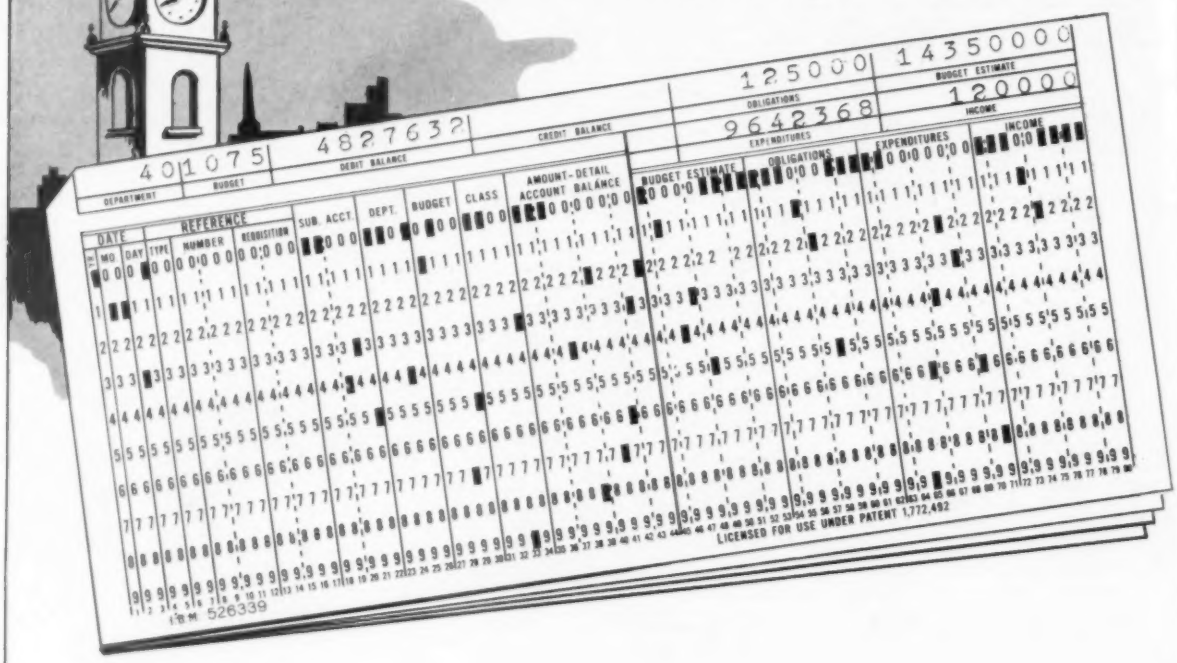

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Public Works Administration

Municipal Public Works Administration.—The Institute for Training in Municipal Administration, 1313 E. 60th St., Chicago, Ill. Revised Edition, 1941. xii+379 pp., lithoprinted. $7.50, loose-leaf binder.

This is the second enlarged edition of a basic text for the Institute's correspondence course in municipal public works administration, covering not the detailed techniques of public-works procedure, but the administrative aspects of the activities of public-works departments and their relation to other departments and the city government as a whole. Chapter titles: Public Works as a Municipal Function; Street Improvement and Maintenance; Street Cleaning and Snow Removal; Street Lighting; Refuse Collection and Disposal; Sewerage and Sewage Disposal; Construction by Contract; Equipment Management; Organization; Personnel Management; Planning Public Works; Measurements, Records, and Administrative Reports; and Public Relations.

City Employee Unions

Power of Municipalities to Enter into Labor Union Contracts—A Survey of Law and Experience.—Prepared by Charles S. Rhyne, Executive Director, National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C. Report No. 76. August, 1941. $2.00.

The power and authority of municipal corporations to enter into collective bargaining agreements with representatives of labor unions of municipal employees is a question about which there has been much recent discussion and interest. In this report, summaries of opinions on the problem from 385 cities in the country, the opinions of state attorneys general, court decisions, and the report of the National Civil Service Reform League's special committee, are presented, with conclusions from all these materials drawn up by the Institute.

Long-Range Budgets

Long-Range Programming of Municipal Public Works.—Public Works Committee, National Resources Planning Board, Washington, D. C. Apply to Supt. of Documents, Washington, D. C. 1941. 72 pp. 30c.

During 1939 and 1940, seven demonstration projects in long-range programming were carried out in seven cities in different parts of the country, by the Public Works Committee for the National Resources Planning Board with the assistance of the Public Works Administration and the Work Projects Administration. This report sets forth methods and procedures for long-range programming of municipal public works, based on experience in these demonstration cities. Chapters cover: Programming—Its Objectives and Procedure; The Financial Analysis; Listing Proposed Improvements; Preparation and Adoption of the Program; Programming Organization. Publications on the subject are listed.

Housing Digest

Technical Bulletin.—Issued Bi-Monthly by the Central Housing Committee on Research Design and Construction, 1601 Eye St., Washington, D. C. Number 1, Aug., 1941. 37 pp.

The Central Housing Committee is composed of various committees and sub-committees, which have from time to time issued reports and bulletins of limited circulation. The issuance of this bulletin is a beginning in an attempt to make these committee findings more generally available. This particular issue is put out by the Committee on Research, Design and Construction, whose principal concern is with housing materials and structures. It contains digests of publications and talks, news items and notes of interest in this field.

Municipal Legislation

Municipal Legislation of 1941.—Report No. 148. American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1941. 20 pp., mimeo. $1.00.

A summary review of recent state legislation of special interest to municipalities, under fourteen main headings.

Planning

Planning for America.—By George B. Galloway and Associates. Henry Holt and Co., New York. 1941. v + 713 pp. $4.00; student's edition, $3.00; from THE AMERICAN CITY.

This series of papers is the most comprehensive—and most important—survey of planning which has yet appeared in America. Planning is approached from five points of view—resources, economic, social, area, and defense. The papers are by government officials and private researchers. They cover both broad theoretical and detailed administrative or statistical aspects of planning in this field. There is an excellent 25-page bibliography to guide the reader in exploring the data presented here in new directions. Although the volume does not bear directly on municipal administration (except perhaps for one chapter on City and County Planning), it should be in every city hall library and on the desk of many officials. It opens wide vistas into the basic problems with which city officials must necessarily be increasingly concerned in the next years.

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Traffic Engineering and Planning

Traffic Accidents and Congestion.—By Maxwell Halsey. John Wiley & Sons, Inc., New York. 1941. 408 pp. $4.00 from THE AMERICAN CITY.

An all-round presentation of the principal elements in the problem of accidents and congestion, and the principles underlying the best methods used to reduce them, is the purpose of this book. The well-illustrated subject matter is divided into five parts: Orientation; Organization and Administration, suggesting governmental readjustment for improved transportation; Fitting Engineering to the Driver; Design Remedies, dealing with the tools, processes, and methods of improving movement by automobile; and How to Attack the Problem, suggesting procedures of analysis, measurement, and the preparation of plans and programs. Seventeen pages of references and a directory of traffic engineers are added.

New York Sewage Plants

Descriptive Data of Sewerage and Sewage Treatment Systems in New York State.—New York State Department of Health, Albany, N. Y. 1941. 28 pp. 25c.

Tables giving data applicable up to January 1 of this year, on the status of sewer systems and treatment plants in New York State, including population served, date of construction, type of system and treatment, and point of discharge.

Lighting

Protective Lighting for American Industry. —By Davis H. Tuck, Electrical Engineer, Holophane Co., Inc., 342 Madison Ave., New York. Reprinted from Illuminating Engineering, July, 1941. 11 pp.

Good practice in three types of protective lighting—particularly important in war times—is described here: fence lighting; inside roadway, path and yard lighting; inside buildings.

Disaster Relief

Disaster Preparedness and Relief.—The American National Red Cross, Washington, D. C. 1941. 111 pp.

Manual for local Red Cross chapters on disaster preparedness and relief, covering: Authority, Definition and Responsibility; Organization; Policies; Preparedness Measures; Committee Organization and Functions; Emergency Relief; Rehabilitation; Financial Procedure; Reports.

Civilian Defense Organization

Local Organization for Civilian Protection. —U. S. Office of Civilian Defense, Washington, D. C. 1941. 11 pp.

Organization chart and brief description of functions for local civilian defense, including a model ordinance for creating a municipal defense council. More detailed instructions to follow.

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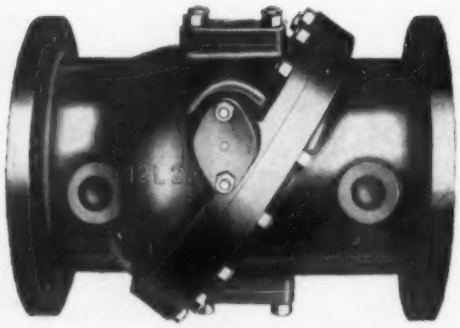

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Assessment Administration

Assessment Organization and Personnel.—National Association of Assesssing Officers, 1313 E. 60th St., Chicago, Ill. 1941. *xvi* + 429 *pp.* $3.75.

This volume is the result of four years of work by the Committee on Assesssment Organization and Personnel. The first part contains the official report and recommendations of the Committee as adopted by the Association. Part Two consists of a compilation of the ten progress reports issued by the Committee, containing the principal factual evidence and arguments upon which the Committee's recommendations are based: Primary Local Assessment Districts; Overlapping Local Assessment Districts; State Assessment Districts; Internal Organization of Local Assessment Departments; Selection, Tenure, and Compensation of Assessing Officers; Personnel Administration; Administrative Review Agencies; Judicial Review of Local Assessments; Equalization Agencies; Assessment Supervision.

Boom-Town Problems

Portsmouth and National Defense—A Series of Articles.—Reprinted from The Portsmouth Herald, Portsmouth, N. H. 1941. 95 *pp.*

Before the defense emergency, Portsmouth's population was about 15,000; already it has grown to almost 17,000, and it is estimated that at the peak of defense activity it will reach about 25,000. In less than eight months, $17,000,000 worth of projects have been completed or contemplated in this city. The acute problems which such a defense community faces, and what may be done about them, are outlined in this series of reprinted articles prepared by E. Jordan, Managing Editor of *The Portsmouth Herald*, with the cooperation of the City Planning Board, city officials and department heads. It goes into the problems of utilities, education, health, transportation, fire, police, recreation, and welfare. One chapter points out the importance of post-war peace considerations in present planning. (See p. 101.)

Grandstand Standards

American Standard Specifications for Portable Steel and Wood Grandstands.— American Standards Association, 29 W. 39th St., New York. 1941. 28 *pp.* 60c.

Standards for the construction of grandstands that will not collapse under sudden strain are contained in this publication, which includes specifications for design and workmanship, loading, materials, allowable stresses, and special requirements for railings, aisles, and footboards. The specifications are based on research carried on by the American Standards Association committee which developed the standards in cooperation with the Pennsylvania Department of Labor and Industry. (See also p. 56 of this issue.)

Crowded Housing

Urban Housing and Crowding.—By Rollo H. Britten, Senior Statistician and J. E. Brown, Assistant Statistician, U. S. Public Health Service; from the Division of Public Health Methods, National Institute of Health. Public Health Bulletin No. 261, U. S. Public Health Service, Federal Security Agency, Washington, D. C. Apply to Supt. of Documents, Washington. 1941. 123 *pp.* 15c.

Based on data collected in the National Health Survey, from 631,429 households in 83 urban communities in 18 states, this report examines and describes, with tables and charts, the relations between dwelling crowding and the following characteristics of the population studied: geographic region and city-size group; color; size of household; tenancy, type, rental or value of dwelling units; size of dwelling unit; age of persons in crowded households.

Christmas Celebration

The Electrical Wonder of 1941—A New Era in Christmas Tree Lighting and Trimming.—Apply to J. M. Gordon & Co., Inc., 189 Greene St., New York. 1941. 6 *pp., mimeo. Free.*

Describes a new type of Christmas-tree decoration, which eliminates many of the disadvantages of the kind now commonly used.

Other Reports Received

AURORA, ILL.—Tenth Annual Report, Sewage Treatment Plant, 1940. 80 pp.

CHICAGO ILL.—Board of Health, 1939. Health Department. 80 pp.

CLEVELAND, OHIO.—Analytical Report on Traffic Accidents, 1940. Bureau of Statistics and Analysis, Department of Public Safety, Division of Police. 1941. 11 pp.

DETROIT, MICH.—"A Quarter-Century of Citizen Concern with Government—A Preface and a Bibliography of the Detroit Bureau of Governmental Research, 1916-1941." Detroit Bureau of Governmental Research, 5135 Cass Ave. 1941. 62 pp.

DUBUQUE, IOWA.—Annual Report, Water Department, year ending May 31, 1941. 79 pp.

FILLMORE, CALIF.—"Doc Looks at Fillmore—Being a Report of Municipal Doings at Fillmore, for the year ended June 30, 1941." By John P. Hennisey, M. D. 42 pp.

HONOLULU, HAWAII.—Biennial Report, Board of Water Supply, 1940. 248 pp.

KALAMAZOO, MICH.—Manual of Accounting and Auditing Procedure. Bureau of Municipal Research. 1941. 16 pp.

LEWISTON, IDAHO.—Annual Report, Engineering, Park, Cemetery, Water and Street Departments, year ending June 30, 1941. 53 pp.

LITTLE ROCK, ARK.—Annual Report, Municipal Water Works, 1940. 69 pp.

MASSACHUSETTS.—Bibliography on Municipal Government in Massachusetts. Prepared for the Use of Taxpayers Associations by The Massachusetts Federation of Taxpayers Associations, Inc., 7 Water St., Boston. 1940. 11 pp.

MINNEAPOLIS, MINN.—"The Relief Problem in Minneapolis." 1941. 14 pp.

NEWARK, N. J.—Health Report, 1940. 56 pp.

QUEBEC, CANADA.—Statistical Year Book, 1940. xxxiv + 444 pp.

SALEM, VA.—Annual Report, year ending June 30, 1941. 44 pp.

TEXAS.—Texas Traffic Accidents, 1940. Compiled by Accident Records Section, Driver's License Division, Department of Public Safety, Austin. 47 pp.

UPPER DARBY, PA.—Annual Report, School District, 1941. 54 pp.

WISCONSIN.—A Budget Manual for Wisconsin Cities and Villages. League of Wisconsin Municipalities, 30 E. Johnson St., Madison, Wis. 1941. 29 pp.

"Accounts and Forms for Small Hospitals." By Stanley A. Pressler. The School of Business, Indiana University, Bloomington, Ind. 1941. 58 pp.

"Consumption of Fuel for Production of Electric Energy, 1940." Federal Power Commission, Washington, D. C.

Governmental Accounting Bibliography. National Committee on Municipal Accounting, 1313 E. 60th St., Chicago, Ill. 61 pp. 1941. 50c.

Annual Report, International Health Division, 1940. The Rockefeller Foundation, 49 W. 49th St., New York. 247 pp.

1941 Yearbook, Park and Recreation Progress. National Park Service, U. S. Department of the Interior, Washington, D. C. Apply to Supt. of Documents, Washington, D. C. 40c. viii + 92 pp.

"Serving the Unserved—Problems Connected with Extending Library Service to Those Now Unserved." Summary of Proceedings of the Library Section Meetings Sponsored by the Washington Library Association at the Institute of Government, University of Washington, June 26 and 27, 1941. Published by The Bureau of Governmental Research, University of Washington, Seattle, Wash., in cooperation with The Washington State Library, Olympia, Wash. 1941. 27 pp.

"Voting Behavior in a Metropolitan Area." By Edward H. Litchfield, Instructor in Political Science, Brown University. University of Michigan Press, Ann Arbor, Mich. 1941. vii + 93 pp.

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HI-LIFT PUMP

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ELECTRIC WATER SERVICE VALVE

This Valve closes automatically whenever solenoid is energized, and opens whenever solenoid is de-energized—*or vice versa.* Solenoid is furnished for either AC or DC circuit for any voltage.

The Valve operates at all times, under any pressures, without shock or bang, owing to the inherent air and water cushioning.

GOLDEN-ANDERSON VALVE SPECIALTY CO.
Fulton Building Pittsburgh, Pa.

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STREET FLUSHING SEWER CLEANING

PUMPING OUT BASEMENTS TREE SPRAYING

★ FIRE-FIGHTING ★ FLUSHING SNOW & SLUSH ★ WATERING SHRUBBERY ★ HAULING WATER ★ SURFACE SPRINKLING ★ RACE TRACK SPRINKLING ★ SIDEWALK CLEANING

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Sanitary STREET FLUSHERS

E. D. ETNYRE & CO. Main Office & Plant OREGON, ILLINOIS

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

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THE MOST COMPLETE LINE OF WATER METERS IN THE WORLD

PITTSBURGH EQUITABLE METER COMPANY
MERCO NORDSTROM VALVE COMPANY
Main Offices, Pittsburgh, Pa.
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"RAIN for the Asking"
A catalog that explains in detail the various types of watering equipment designed to keep your parks and parkways always fresh and green. Skinner System engineering and consulting service has solved every conceivable type of watering problem. We are equipped to handle your watering problems better at lower cost. A card or letter brings you the catalog and details of our service. No obligation.
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of reinforced concrete construction

results in structures that WILL NOT CRACK, are frost resisting and require no upkeep. This system of reinforcing is applied to circular tanks for the storge of liquids and to thin shell domes. In use more than 18 years; applied to tanks everywhere, with a total capacity of more than 60,000,000 gals. and to domes covering more than 400,000 sq. ft. of surface. We do not build but cooperate with local engineers in the design of structures.

3,000,000-Gal. Water Tank, Colton, Calif.

Write for literature. Estimates furnished without obligation.

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20 N. Wacker Drive, Chicago, Ill.

Conventions - - When and Where

Meeting is annual convention unless otherwise designated

***October 12-14.—Sacramento, Calif.**
California Sewage Works Association. Fall meeting. Sec., Fred D. Bowlus, 202 Law Bldg., Los Angeles.

October 12-14.—Virginia Beach, Va.
League of Virginia Municipalities. (Cavalier Hotel.) Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

October 12-16.—St. Paul, Minn.
National Tax Association. (Lowry Hotel.) Sec., Raymond E. Manning, Library of Congress, Washington, D. C.

October 13-16.—Fort Worth, Texas.
American Water Works Association—Southwest Section. (Hotel Texas.) Sec., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

October 13-14.—Chanute, Kans.
Kansas Association of Municipal Utilities. Sec.-Treas., L. C. Angevine, McPherson, Kans.

October 13-16.—Sacramento, Calif.
League of California Cities. Sec., Richard Graves, 2121 Allston Way, Berkeley, Calif.

October 13-16.—Atlantic City, N. J.
National Association of Public School Business Officials. (Ambassador Hotel.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

***October 13-15.—Jamestown, N. Dak.**
North Dakota Water and Sewage Works Association. (Gladstone Hotel.) Sec.-Treas., L. K. Clark, Bureau of Sanitary Engineering, Bismarck, N. Dak.

October 14-17.—Atlantic City, N. J.
American Public Health Association. (Convention Hall and Auditorium.) Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York.

October 15-17.—Chicago, Ill.
Illinois Municipal League. (Congress Hotel.) Exec. Dir., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

October 15-17.—Atlantic City, N. J.
Pennsylvania Water Works Association. (Haddon Hall.) Sec., Dr. F. Herbert Snow, 507 Telegraph Bldg., Harrisburg, Pa.

October 15-17.—Knoxville, Tenn.
Tennessee Municipal League. Sec., C. C. Gilbert, 1014 Stahlman Bldg., Nashville, Tenn.

October 16-18.—Atlantic City, N. J.
American Water Works Association—New Jersey Section. (Madison Hotel.) Sec., C. B. Tygert, P. O. Box 178, Newark, N. J.

October 16-17.—Kitchener, Ont.
The Canadian Institute on Sewage and Sanitation. (Walper House.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Toronto, Ontario.

***October 16-17.—Atlanta, Ga.**
Georgia Municipal Association. Sec., Zach Arnold, Ansley Hotel, Atlanta, Ga.

October 16-17.—Eau Claire, Wis.
League of Wisconsin Municipalities. (Eau Claire Hotel.) Sec., Frederick MacMillin, 30 E. Johnson St., Madison, Wis.

October 18.—Morgantown, W. Va.
League of West Virginia Municipalities. (City Hall.) Exec. Sec., Hume K. Nowlan, Hinton, W. Va.

October 19-22.—Jacksonville, Fla.
National Association of Assessing Officers. (Hotel George Washington.) Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Illinois.

October 19-22.—Los Angeles, Calif.
National Association of Commercial Organization Secretaries. (Biltmore Hotel.) Asst. Sec.-Treas., Mrs. Norma McKellops, 1615 H St., N. W., Washington, D. C.

October 20-22.—Cedar Rapids, Iowa.
American Water Works Association—Missouri Valley Section. (Montrose Hotel.) Sec., Earle L. Waterman, Univ. of Iowa, Iowa City, Iowa.

***October 21-24.—Buffalo, N. Y.**
New York State Conference on Social Work—Housing Section. Chairman, Mrs. Leonard W. Jones, Gannett House, Rochester, New York.

October 22-25.—Fresno, Calif.
American Water Works Association—California Section. (Fresno Hotel.) Sec., Gerald E. Arnold, San Francisco Water Dept., Millbrae, Calif.

***October 22-25.—Atlanta, Ga.**
Georgia Water and Sewage Association. (Georgia School of Technology.) Sec.-Treas., Paul Weir, 1210 Hemphill Ave., Atlanta, Ga.

October 25-25.—Chicago, Ill.
The American Municipal Association. (Stevens Hotel.) Exec. Dir., Earl D. Mallery, 1313 E. 60th St., Chicago.

***October 24.—Baltimore, Md.**
American Institute of Planners. Fall meeting. Exec. Sec., Harold W. Lautner, 1313 E. 60th St., Chicago, Ill.

October 26-29.—New Orleans, La.
American Public Works Association. (Roosevelt Hotel.) Acting Exec. Dir., Norman Hebden, 1313 E. 60th St., Chicago, Ill.

October 27-29.—Nashville, Tenn.
American Water Works Association—Kentucky-Tennessee Section. (Andrew Jackson Hotel.) Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

***October 27-30.—Jacksonville, Fla.**
Civil Service Assembly of the United States and Canada. Dir., James M. Mitchell, 1313 E. 60th St., Chicago, Ill.

October 30-31.—Roanoke, Va.
American Water Works Association—Virginia Section. (Hotel Roanoke.) Sec., N. Phillips, Jr., 119 State Office Bldg., Richmond, Virginia.

Oct. 30-Nov. 1.—Morgantown, W. Va.
American Water Works Association—West Virginia Section. (Hotel Morgan.) Sec., John B. Harrington, State Dept. of Health, Charleston, W. Va.

November 3-5.—High Point, N. C.
Joint meeting. (Sheraton Hotel.) American Water Works Association—North Carolina Section and North Carolina Sewage Works Association. Sec., R. S. Phillips, Box 1170, Durham, N. C.

November 5-7.—Temple, Texas.
League of Texas Municipalities. (Kyle Hotel.) Exec. Sec., E. E. McAdams, 2223 Guadalupe St., Austin, Texas.

November 6-7.—Baltimore, Md.
American Water Works Association—Four States Section. (Lord Baltimore Hotel.) Sec., Lloyd Nelson, U. S. Pipe & Foundry Co., Broad and Chestnut Sts., Philadelphia, Pa.

***November 6-8.—Columbia, Mo.**
Missouri Water and Sewerage Conference. Sec.-Treas., W. A. Kramer, State Board of Health, Jefferson City, Mo.

***November 13-15.—Daytona Beach, Fla.**
American Water Works Association—Florida Section. (Osceola Hotel.) Sec., A. P. Black, Univ. of Florida, Gainesville, Fla.

November 13-14.—Atlantic City, N. J.
New Jersey State League of Municipalities. Exec. Sec., James J. Smith, 808 Trenton Trust Bldg., Trenton, N. J.

***November 17-19.—St. Louis, Mo.**
National Municipal League. Statler Hotel.) Sec., Howard P. Jones, 299 Broadway, New York.

November 25-27.—Hollywood, Fla.
International City Managers' Association. (Hollywood Beach Hotel.) Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

December 1, Week of.—Washington, D. C.
Highway Research Board of the National Research Council. Dir., Roy W. Crum, 2101 Constitution Ave., Washington, D. C.

December 1-2.—Philadelphia, Pa.
Symposium. Tax Institute. Exec. Sec., Miss Mabel L. Walker, 133 S. 36th St., Philadelphia.

December 4-6.—Washington, D. C.
National Institute of Municipal Law Officers. (Mayflower Hotel.) Exec. Dir., Charles S. Rhyne, 730 Jackson Place, N. W., Washington, D. C.

December 11-13.—Tampa, Fla.
Florida League of Municipalities. (Hotel Tampa Terrace.) Sec.-Treas., E. P. Owen, Jr., 1707 Barnett Nat'l Bank Bldg., Jacksonville, Fla.

***December 30.—New York City.**
American Water Works Association—New York Section. Luncheon meeting. (Commodore Hotel.) Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York City.

May, 1942.—Indianapolis, Ind.
National Conference on Planning. Joint annual conference of American Society of Planning Officials, American Institute of Planners, the American Planning and Civic Association, and the National Economic and Social Planning Association. Conference Dir., Miss Harlean James, 901 Union Trust Bldg., Washington, D. C.

***June 21-25.—Chicago, Ill.**
American Water Works Association. (Stevens Hotel.) Sec., Harry E. Jordan, 22 E. 40th St., New York City.

* First appearance of notice on this page.

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"GRAVIMETRIC"

FEEDER MACHINES

for Accurate
Dependable
Dry Chemical Dosage
by Weight

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"VOLUMETRIC"

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for Automatic
Dry Chemical Dosage
from Flow Meter or
pH Indicator Control

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"War is Hell"

...ON BRIDGES!

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★America *needs* good bridges. From motorized columns to monster tanks the army must be able to move swiftly and efficiently. No bottlenecks. No detours. A huge task, admittedly, but here is something that will make it easier . . .

Use durable ARMCO Multi Plate to replace weak structures or widen narrow ones. Multi Plate is an especially wise choice when speed is demanded. The rugged plate sections come to the job site ready for quick, easy assembly. No special equipment or skilled labor is needed. An average installation is completed in a few days and you have a bridge that meets every requirement for strength and durability.

Building strong, low-cost Multi Plate bridges brings benefits in peacetime as well as wartime. Low maintenance and trouble-free service are assured. You will also find ARMCO Multi Plate Pipe and Arches ideal for building stream enclosures, large sewers or special drainage structures. Write us for complete data. ARMCO DRAINAGE PRODUCTS ASSN., 5073 Curtis St., Middletown, O.

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1 Banish "fifth column" bridges! The simple, effective way is to replace or extend them with ARMCO Multi Plate.

2 Strength to spare! In actual tests a Multi Plate Arch 10 feet long and with a 20-foot span withstood loads up to 350 tons.

3 Full speed ahead! A few days and you have a bridge that will last as long as the road. Finish off with any headwall you like.

ARMCO MULTI PLATE PIPE OR ARCHES

A TYPE OF PRODUCT ORIGINATED AND DEVELOPED BY ARMCO ENGINEERS

Why not remember to mention THE AMERICAN CITY?

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

The First TournaPass, Erected at Atlanta, Georgia, and Demonstrated for Three Weeks in August, 1941

A TournaPass Overpass Fits Any City Site

The inventive genius of R. G. LeTourneau, President of R. G. LeTourneau, Inc., Peoria, Ill., has brought forth a standard overpass structure of steel which can be erected at any city crossing and will take vehicles over the intersecting street. The TournaPass consists of three 60-foot sections with detachable legs having adjustable piers to fit the site contour and provide the required clearance for under-crossing traffic. The clearance of 10 feet 6 inches used on the first TournaPass erected at Atlanta, Ga., gave ramp grades of 12 per cent which most cars took at 17 to 22 miles per hour.

On the initial test, 55,000 vehicles southbound on Peachtree Street were carried across Wesley Street, eliminating a red-light stop for 33 to 40 per cent of the vehicles, and ridding the intersection of much congestion on the busiest days. Although an optional two-lane street-level route paralleled the TournaPass, 74 per cent of the drivers took the over-crossing.

The fact that the TournaPass is adjustable to any site, and is entirely prefabricated ready for erection, makes it have many unusual advantages. It is even possible that cities which have enormous crowds for some great event lasting one day or even for a week might wish to install a TournaPass for that period alone, and remove it for the remainder of the year when traffic at an intersection is not as congested. The major idea is to permit smaller communities to have overpasses for traffic at moderate expense, and thereby solve their traffic problems most economically.

The TournaPss is constructed entirely of alloy steels; and the electric-welded LeTourneau Box Beam design gives it great strength and sturdiness coupled with light weight. Welded into a rigid one-piece unit, it resists torsion, twisting strains and bending throughout the entire span.

A NEW
Economical
PORTABLE FIRE PUMP

- *Do you know its name?*
- *What it will do?*
- *How soon it is available?*

Ask us for a practical description of this remarkable economical emergency fire pump.

With this *NEW* economical light-weight portable fire pump you can make immediate use of *any* water otherwise inaccessible without this pump. It gives you the jump on those outlying fires.

Don't wait until you must have it, find out from us—

NOW!

GRIFFIN WELLPOINT CORP.
729 E. 140th St., New York, N. Y.
Phone MElrose 5-7704-5

Austin-Western Issues Badger Shovel Catalog

The Austin-Western Road Machinery Co., Aurora, Ill., has prepared and issued a new catalog on the A-W Badger shovel, which is powered by gasoline, diesel or electric engine. Special features of this shovel are discussed, illustrated with drawings and clear photographs of Badger shovels at work. Other photographs illustrate the six conversions made possible by attachments for this shovel: trench hoe, crane, clamshell, dragline, pile driver, and skimmer. The design and construction of the various parts of the mechanism, and of the three types of engine available, are discussed in detail; and tables give brief specifications and working ranges for the shovel, clamshell, dragline, crane, and trench hoe attachments.

When conditions justify the use of the Badger in unfavorable weather, a fully-enclosed cab can be had on special order. It is constructed entirely of steel, with sliding door and windows.

Copies of this informative catalog are available from Austin-Western on request to readers of this item.

RUSTA-RESTOR
TRADE MARK REGISTERED
PATENTED PATS. PENDING

says

"STOP"

to

RUST IN STEEL TANKS AND RISER PIPES

Rusta-Restor is the only positive method of preventing rust in all types of steel tanks and riser pipes (*the electrical method*).

RUSTA RESTOR CORP.
1450 W. State Street
FREMONT OHIO

Grits for Highway Ice Control Should Be Prepared Now!

CALCIUM CHLORIDE IS YOUR BEST DEFENSE AGAINST

- • • **Loss of Time**
  Calcium Chloride Keeps Abrasives Unfrozen, Easy to Handle and Spread
- • • **Excessive Costs**
  Treated Abrasives Do More Work Per Yard Yet Save in Handling Cost
- • • **Waste of Materials**
  You Use Less Abrasives and They Stay Longer

Stockpiling methods vary with individual needs. Some use huge piles like the 3500 cubic yard supply shown above, centrally located for redistribution. Others use carefully covered small local piles, bins for chute loading or long piles for increased loading access.

No matter which method you use, be sure to include calcium chloride. Thinner applications of treated abrasives will go farther, dig deeper and stick longer. Abrasives will load easier, spread faster and save labor. Now, before freezing weather, is the time to get your supply of calcium chloride and prepare stock piles for the winter offensive against icy roads. Literature explaining methods and amounts to use will be mailed at your request.

CALCIUM CHLORIDE ASSOCIATION
4145 PENOBSCOT BLDG. • DETROIT, MICHIGAN

Floyd L. Swindell

New Sales District for "Varec" Equipment

Floyd L. Swindell has been appointed mid-continent sales representative at Tulsa, Okla., by The Vapor Recovery Systems Co., Compton, Calif. Mr. Swindell is a graduate of the University of Oklahoma, and was first employed as Valuation Engineer in the U. S. Treasury Department, Income Tax Unit, studying oil and gas reserves, valuation, determination of depreciation rates, obsolescence of oil-field equipment and valuation of stock.

During the past fifteen years, Mr. Swindell has been Kansas-Oklahoma editor and staff representative of the *Oil Weekly*, and has been engaged as an independent consulting engineer and geologist. He has had experience in selling with the Texas Steel Co. at Fort Worth and the Buda Engineer and Sales Service at Tulsa. In this work he had intimate contact with conditions in the mid-continent field as well as in Texas, Louisiana, Arkansas and New Mexico.

New Boston Quarters for Pittsburgh-National

On the first of September, the National Meter Division of Pittsburgh Equitable Meter Co., Pittsburgh, Pa., moved into new and larger quarters, consisting of offices and warehouse at 708 Beacon Street, Boston, Mass. For over 50 years the National Meter Co. served the New England area through its Boston factory branch, for the last ten years located at 368 Congress Street in Boston. At the new location, under the name Pittsburgh-National Meters, a full stock of both Pittsburgh and National oil and water meters will be carried. Parts and accessories, as well as complete service and repairs, will be available at this new address.

The sales and service in New England will be under the direction of Eben P. Lufkin, District Manager, whose father was connected with the National Meter Co. for nearly 50 years and served as its New England manager for 35 years prior to his retirement in January, 1941. Representatives of Pittsburgh-National in the New England territory traveling from the protection of building structures, metals Boston headquarters include Richard H. Smith, Henry L. Weston, and D. J. Atwell.

Coatings for Metals Prevent Corrosion

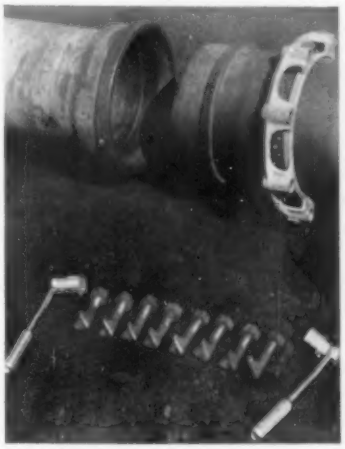
A new organization has been established to produce a variety of products for the protection and preservation of materials used in manufacturing. This Tocol line, made by Protective Coatings, Inc., 1031 Northlawn Avenue, Detroit, Mich., includes complete rubber insulation as well as a line of more than 35 products for the protection of building structures, metals used in production, and for the protection of many types of materials against water, sun, acids, alkalies, and general wear.

Aquanil, a non-oxidizing waterproofing material, is used for concrete, stone, wood, brick and metals. Deox is a metal conditioner for all metals, while Volcazite protects metals against all forms of corrosion.

The organization is headed by H. Tom Collord, who has been cooperating with a group of industrial laboratories for several years in the development of serviceable protective coatings. He is the founder of Collord, Inc., maker of rubberized production parts for the automobile industry, and is also founder and President of Paramount Rubber Company.

New Location of the Boston Office of the Pittsburgh Equitable Meter Co. and its National Meter Division

STOP
JOINT LEAKAGE



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MECHANICAL JOINTS
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for Cast Iron Pipes and Fittings
also Leak Clamps
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FOR BETTER VALUE
-at low cost

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Ideal in safety, comfort, durability and economy — *plus* unique unit system of construction adaptable to any school or municipal program. Full details in 8-page descriptive bulletin.

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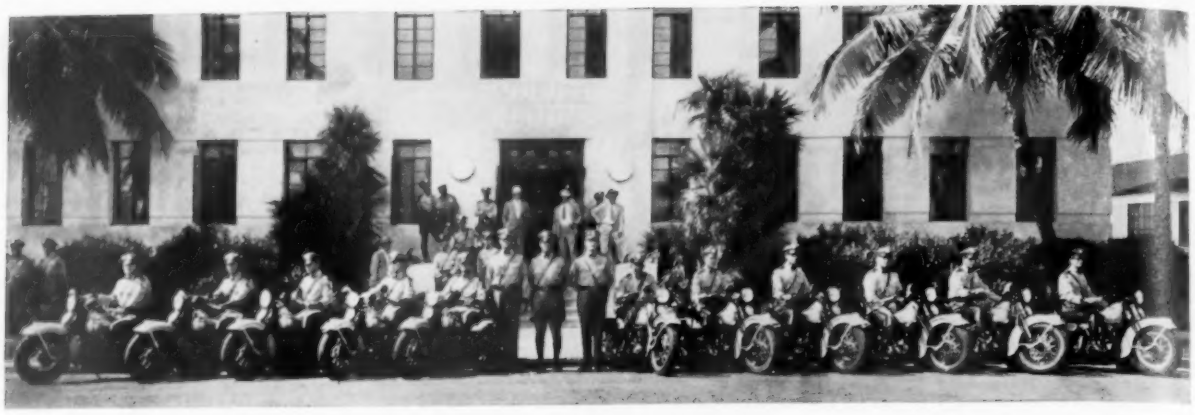


AT MIAMI BEACH, FLORIDA
IT'S HARLEY-DAVIDSON
100%

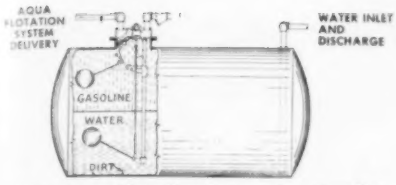
ANOTHER of America's efficient police departments recognizes outstanding dependability and performance — and uses Harley-Davidson Police Motorcycles exclusively! Miami Beach, like more than 3,500 cities from coast to coast, has proved by experience that Harley-Davidsons have no equal for reliability and economy — are the finest and most efficient motorcycles that money can buy.

It will prove well worth your while to learn why Harley-Davidsons are the nation's choice as the most versatile vehicles for traffic control and law enforcement. Ask your Harley-Davidson dealer to explain and demonstrate their superior features.

HARLEY-DAVIDSON MOTOR CO.
Milwaukee • Wisconsin

THE POLICE ★ MOTORCYCLE

HARLEY-DAVIDSON



The Aqua Flotation System for Gasoline Storage and Delivery at Airports

Fueling at Airports by Closed System

The closed system of airport fueling, where there is no air space in the tank, the entire volume being filled with either gasoline or water, is now used at most airports. By the Aqua Flotation System, the entire tank is automatically kept filled with liquid, the balance between gasoline and water being maintained by shut-off floats. This method, developed and sold by Aqua Systems, Inc., a subsidiary of Neptune Meter Co., 385 Gerard Avenue, New York, eliminates explosion hazards because no explosive mixture can form in the completely liquid-filled tank, and no gasoline fumes are discharged during the filling of the tank with the fuel. Another distinct advantage is that the fuel is always clean, for gasoline floats on water, and any dirt present in it falls to the bottom of the tank. Complete information on the Aqua Flotation System will be found on Form No. AS-1 which may be secured direct from the manufacturer by mentioning this item.

Sewage-Works Equipment at FSWA Convention

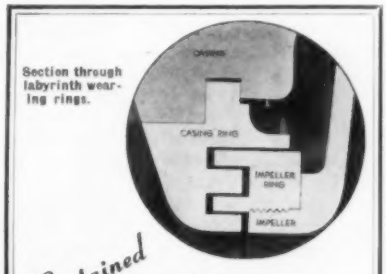
The second annual convention of the Federation of Sewage Works Associations, parent body of the various state and sectional sewage-works groups, will feature an Equipment Show which will place on display the newest developments in the sewerage and sewage-treatment field. The annual exhibit will be held in the Grand Ballroom of the Hotel Pennsylvania, New York City, convention headquarters, for the period from October 9 through 11. The Water and Sewage Works Manufacturers Association is cooperating with the Federation in aranging this educational show of modern sewage-works equipment.

J. Herman Smith, Chairman of the Exhibit Committee, has anounced that the largest sewage-works equipment exhibit ever displayed will crowd the hotel. Among the manufacturers who have reserved space are: Aluminum Co. of America; American Brass Co.; American Cast Iron Pipe Co.; THE AMERICAN CITY Magazine; The American Rolling Mill Co.; Carson-Cadillac Co.; Ralph B. Carter Co.; Chain Belt Co.; The Chapman Valve Manufacturing Co.; Chicago Pump Co.; The Dorr Co., Inc.; Electro Rust-Proofing Co.; *Engineering News-Record;* Fairbanks, Morse & Co.; Flexible Sewer-Rod Equipment Co.; General Electric Co.; Homelite Corp.; International Filter Co.; Johns-Manville; Lakeside Engineering Corp.; Limestone Products Corp. of America; Link-Belt Co.; The Mathieson Alkali Works, Inc.; Monsanto Chemical Co.; Nichols Engineeering & Research Corp.; Pacific Flush Tank Co.; Pittsburgh Equitable Meter Co.; *Public Works* Magazine; Royer Foundry & Machine Co.; *Sewage Works Engineering;* U. S. Pipe & Foundry Co.; Vapor Recovery Systems Co.; Wailes Dove-Hermiston Corp.; Wallace & Tiernan Co.; Inc.; *Water Works & Sewerage;* R. D. Wood Co.; Yeomans Bros. Co.

New District Engineer for Asphalt Institute

The Asphalt Institute has announced the appointment of E. B. Cape as its District Engineer for the territory comprising Texas, Oklahoma and Arkansas, with an office in the Littlefield Building, Austin, Texas.

Mr. Cape's engineering training began with the field crews of the Texas Power and Light Co. while attending Texas A. & M. College. For the past twelve years he has been employed by the Texas Highway Department, for six years with headquarters at Bryan and Lufkin in the south central and eastern portions of the state, as Assistant Resident and Project Engineer on all types of construction. In 1935 he was transferred to the Austin office, where he served first as Assistant Construction Engineer and then, until his Institute appointment, as Materials and Tests Engineer for the Texas Highway Department.



Sustained EFFICIENCY
OF DE LAVAL PUMPS

is due to proper hydraulic design, which avoids cavitation and pitting, and particularly to renewable **LABYRINTH WEARING RINGS**, which protect casing and impeller from erosion and reduce leakage from discharge to suction.

With De Laval **LABYRINTH RINGS** there is only about one-third as much leakage as between plain rings having the same radial clearance, or for the same initial efficiency De Laval pumps can have greater clearances than can pumps with flat rings. Because of the reduced leakage there is less erosion of De Laval rings than of flat rings and efficiency is better sustained. De Laval pumps which have been in continuous service for many years without renewal of parts still equal their original efficiencies, as demonstrated by numerous tests.

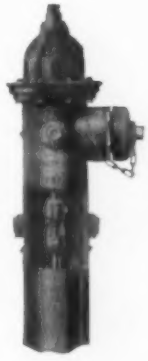
All parts of De Laval pumps are interchangeable on a limit gage basis and renewals ordered by number require no fitting.

State your pumping conditions and ask for Publication P-3222.

DE LAVAL
Steam Turbine Co.
TRENTON, N.J.

FIRE FIGHTERS APPRECIATE

VALVES
HYDRANTS
and
PIPE LINE
ACCESSORIES



A. W. W. A. HYDRANTS
Underwriters Approved

Conform to American Water Works Association specifications. Approved and listed by Underwriters' Laboratories and Associated Factory Mutuals. Well known and widely used for many years.

M & H Fire Hydrants are dry top and revolving head. They are easy to lubricate. Maintenance costs are low, due to simplicity of design and rugged construction. They have low friction loss and great efficiency because barrel diameter is not reduced and there are no working parts or obstruction in waterway. Special Traffic model, as illustrated above, is designed to yield at the round line under impact. Repair is simple and easy by renewing breakable bolts and breakable coupling on stem.

M & H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

NO. 7

ALUMINUM, DEFENSE, AND YOU

THE TIMETABLE OF ALUMINUM FOR DEFENSE

up to September 10, 1941

1938 Sept. *Munich.*
Oct. *Czechoslovakia invaded.*
Nov. Alcoa inaugurates $26,000,000 expansion program.
Dec. Alcoa produced 287 million pounds in 1938; had more than a year's supply on hand.

1938

1939 Jan. New extrusion and tube mill begins operation at Lafayette, Ind.
Feb. Start building an excess stock pile of airplane sheet.
Mar. *Bohemia and Moravia occupied.*
Apr. *Albania invaded; Congress authorizes Army to acquire 6,000 planes by July, '41, and Navy 3,000 by '44. Aluminum for all these would take about two months 1941 production.*
Sept. *Poland invaded; U. S. Neutrality proclaimed; limited National emergency proclaimed.*
Alcoa authorizes new metal-producing capacity at Alcoa, Tenn.
Nov. *Finland invaded; Cash-and-carry act signed.*
Alcoa completes $26,000,000 expansion program, begins plans for a larger one.
Dec. *U. S. protests blockade of German exports.*
New metal-producing plant authorized at Vancouver, Wash.
1939 production 327 million pounds; 215 million on hand.

1939

1940 Jan. *First request for defense appropriation in Budget Message.*
Alcoa announces $30,000,000 more plant expansion.
Mar. Alcoa reduces price of aluminum from 20c to 19c, starts construction of Vancouver, Wash., plant.
Apr. *Denmark and Norway invaded.*
May *Low countries invaded; National Defense Advisory Commission named.*
New metal-producing unit begins operation at Alcoa, Tenn.
June *Dunkerque; France capitulates.*
Additional metal-producing unit authorized at Alcoa, Tenn.
July *Congress lifts previous limits on numbers of planes.*
Aug. *Air offensive against England begins; 50 destroyers exchanged for island air bases.*
Alcoa reduces price of aluminum ingot from 19c to 18c; capacity for making alumina increased.
Sept. *Egypt invaded; Selective Service Bill passed.*
First metal manufactured at Vancouver, Wash., plant and new units for additional capacity authorized.

1940

Oct. *Rumania invaded.*
Alcoa authorizes another $150,000,000 for expansion.
Nov. *26 bombers on contract turned over to Britain.*
Alcoa reduces ingot price from 18c to 17c; additional capacity authorized at Badin.
Dec. Alcoa 1940 production 413 million pounds; 154 million on hand.
1941 Jan. *OPM established; NDAC says aluminum supply adequate to meet October, 1940, estimates of requirements.*
Alcoa authorizes additional capacity at Alcoa, Tenn.
Feb. *Aluminum put on priorities.*
Mar. *Lend-lease bill signed.*
Alcoa produces 44,000,000 pounds of metal this month.
Apr. *Yugoslavia invaded; U. S. occupies Greenland.*
May 150 million-pound-annual-capacity plant at Vancouver, Wash., completed and operating at capacity.

1941

June *Crete lost; Russia invaded.*
July *New Government aluminum plants authorized; U. S. occupies Iceland; Japan moves into Indo-China.*
Alcoa produces 53,000,000 pounds this month; Badin unit authorized November, 1940 starts operation.
Aug. *U. S. Government announces Aluminum Company of America will build and operate 3 Government-owned aluminum smelting plants and one for making alumina.*
Alcoa announces ingot price reduction to 15c, effective October 1, 1941.
Alcoa and T. V. A. conclude agreement to unify two great hydro-electric power systems in the Tennessee Valley, which will add at least 200,000,000 pounds to America's annual aluminum producing capacity.
Alcoa produces 54,000,000 pounds of aluminum this month.
Sept. Sites selected for two of the Government-owned aluminum plants and for the alumina plant; railroad, water, and sewage facilities provided; construction contracts being executed.
Alcoa starts construction of 325,000,000 pounds per year additional alumina producing capacity at its own Mobile plant; construction started on additional capacity for 22 million pounds of aluminum fluoride, and 23 million pounds of cryolite annually at East St. Louis; eight new extrusion presses purchased to bring expansion up to 238% of pre-war capacity.
Excess stock pile of aluminum airplane sheet started in February, 1939, being maintained at 5,000,000 pounds.

ALUMINUM COMPANY OF AMERICA

During October we hope you will remember to mention THE AMERICAN CITY.

The New Trailmobile 50-Ton Equipment Trailer Recently Purchased by the City of Cincinnati, Ohio

Quick Transportation of City Equipment

New methods of street paving, the ever-growing traffic problem and the use of heavy street maintenance equipment are constantly presenting new problems in city management. To provide quick and economical transportation of heavier equipment, the city of Cincinnati recently purchased a semi-trailer, carryall type drag which will move a load of 50 tons. The Cincinnati Highway Maintenance Department uses a number of 20-ton equipment trailers; but the latest one, shown in the illustration, a 16-wheel model, was designed specially to haul a 50-ton power shovel. The Trailmobile equipment trailer, made by The Trailer Co. of America, Cincinnati, Ohio, is hauled by a Biederman tractor made by Biederman Motors Co., of Cincinnati.

A Dresser Warehouse for Houston, Texas

A new southwest warehouse has been opened by Dresser Mfg. Co. of Bradford, Pa., at Houston, Texas, to make available ready-made joints overnight for the speedy laying of pipe-lines for both oil and water purposes. The new warehouse is located at 1121 Rothwell Street, Houston, and is in charge of David H. Geiser, Manager. C. T. Davis, District Manager, Water and Gas Division, and H. R. Shidel, District Manager, Oil-Field Division, will have their headquarters at the new District Office located at the warehouse.

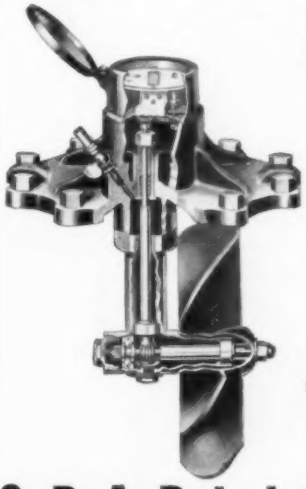
New Electrical Manual Available Gratis

Those who are not familiar with electrical phenomena or terminology can acquire a good working knowledge by reading the new 48-page "Catechism of Electrical Machinery" recently published in a new revised edition by Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago, Ill. The Catechism begins by explaining electricity and magnetism as utilized in electric generators and motors, and goes on to discuss important electrical measurements. The principles of direct-current generators and motors are presented next, followed by an A-B-C examination of alternators and alternating-current motors. The illustrations, including simplified diagrams as well as photographs, are generously dispersed through the text as aids to clear understanding. Useful tables of practical application are included.

Copies of the Catechism are available gratis to readers of THE AMERICAN CITY writing direct to Fairbanks-Morse on their official letterheads and mentioning this item.

Murdock Fountains for Government Tourist Camp

The U. S. Department of the Interior has recently purchased Murdock "Air Lock" anti-freezing outdoor drinking fountains for use at the Washington Tourist Camp, East Potomac Park, Washington, D. C. This is the second installation of these fountains in the parks of the Capital.



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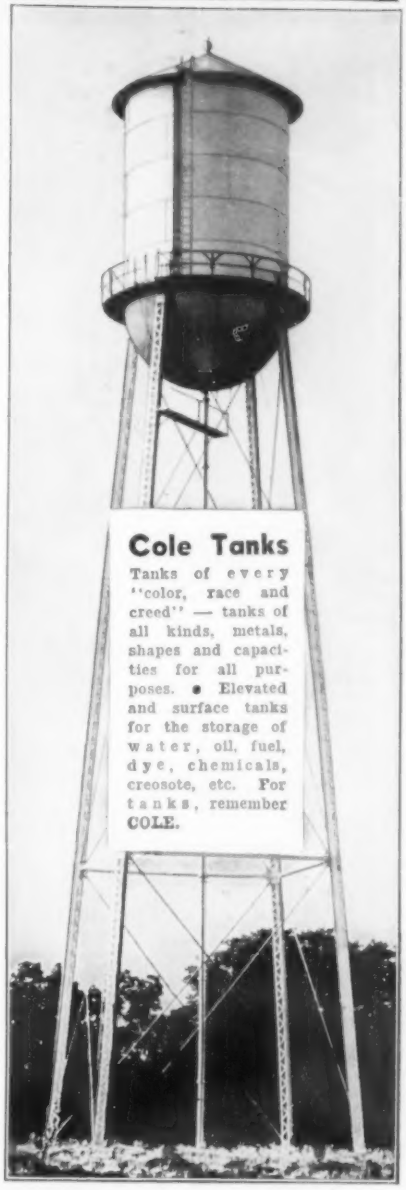

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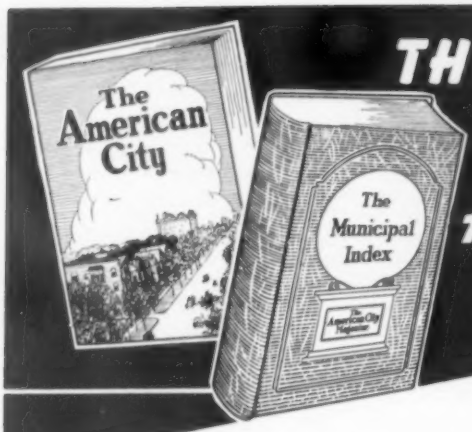

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NEW YORK

Mr. E. J. Buttenheim,
The American City Magazine,
470 Fourth Ave.,
New York City.

Dear Sir:

We feel sure you will be interested to know that, as a direct result of our ad in the July issue of your magazine, we have secured a contract for cleaning water mains at Harbor Beach, Michigan.

Mr. James I. Bennett, who is City Engineer at Harbor Beach, wrote to our Chicago office, stating he had seen our advertisement in the July issue and asked for information. This was supplied promptly by our Branch Manager, who later called at Harbor Beach in order to obtain complete data and estimate on the work. A contract was submitted and accepted and work is now under way there.

This is the most recent instance of the effectiveness of our advertising in The American City, which we consider an excellent medium. We receive numerous inquiries referring to the magazine with a very good percentage of ultimate business.

We might mention also that our increasingly large advertisements in "The Municipal Index" have had very good results, which confirm our belief that the "Index" reaches those most interested in our service.

Very truly yours,

NATIONAL WATER MAIN CLEANING CO.

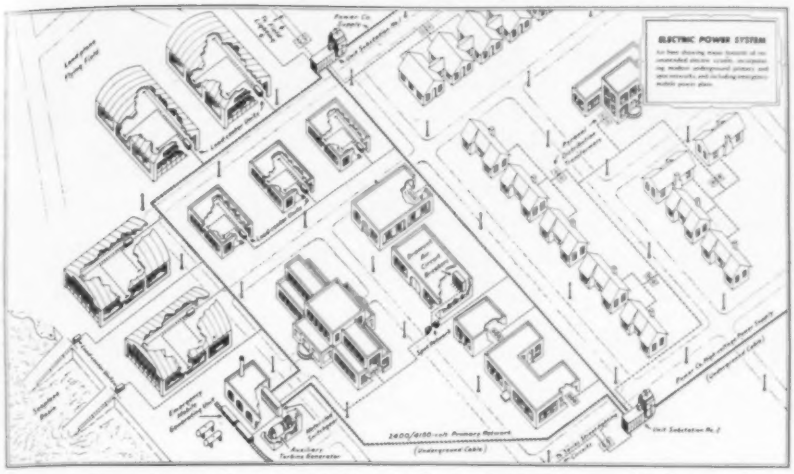
C. L. Wright

C. L. Wright,
Secy - Asst. Gen. Mgr.

CW-

AMERICAN CITY MAGAZINE CORP.
470 Fourth Ave. New York

During October we hope you will remember to mention THE AMERICAN CITY.



Isometric Sketch of a G-E Electric Power System for an Air Base

Packaged Power Systems for U. S. Air Bases

Packaged, designed-for-defense electric power systems have been developed for U. S. air bases by the General Electric Co., Schenectady, N. Y. Planned as units, the systems have all their parts—generating equipment, load-center power units, unit substations, distribution transformers, and switchgear—coordinated electrically, mechanically and thermally in advance of installation. This has been done because experience indicates that the time normally required for designing and building a conventional system can be reduced by from four to eight months through the use of packaged units.

To assure reliable functioning under warfare conditions, the systems are designed so that power continues to be supplied to unharmed parts even after one area may have been damaged. All apparatus in the systems is metal-enclosed for protection, safety and reliability. Each of the systems includes two or more regular sources of power supply, using tie-ins with outside generating facilities wherever available.

Sewer Joint Compounds Announced by Keystone

Two sewer joint compounds, a hot pouring and a cold troweling type, have been announced by Keystone Asphalt Products Co., 43 East Ohio Street, Chicago, Ill. A heavy cardboard container is used for packaging the hot pouring compound in 200-pound units. The package is sufficiently small to permit its full use in the average melting pot, eliminating all possibility of obtaining an improper mix between the asphalt and filler. The cardboard container is easily stripped from the hardened cake of compound, facilitating handling on the job.

The hot pouring compound presents a mixture of petroleum asphalt and finely ground mineral filler designed to retain flexibility in cold weather and to prevent erosion and flow in hot weather. It may be applied by any of the common methods used to join pipe sections horizontally. Two sections may be jointed before lowering to a horizontal position by placing the pipe vertically, one section on top of the other with the spigot centered in the bell, pouring the compound, and allowing to stand until solidified.

The cold troweling type, designated as Keystone Plastic Sewer Joint Compound, is designed to prevent infiltration of water into concrete and vitrified sewer pipes and to remain sufficiently plastic so as to take up any natural pipe settlement. It is also adaptable as a calking compound for roof construction and other building work.

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